HMQ 1890, LLC

REMEDIAL INVESTIGATION WORK PLAN
HMQ Site Restoration and STEAM Center
220 North Prospect Street, Herkimer, New York

BCP Site No.: C622024

14 October 2022
REVISED 25 July 2023

Prepared for:

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Ambient Project No. 230714ENVA

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1.0 INTRODUCTION

1.1 PURPOSE

As stated in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation dated May 2010 issued by New York State Department of Environmental Conservation (NYSDEC), herein referred to as DER-10, the purpose of the Remedial Investigation (RI) at the HMQ Site Restoration and STEAM Center BCP Site is summarized as follows:

- delineate the areal and vertical extent of contaminants in all media at the site;
- determine the surface and subsurface characteristics of the site, including topography, geology and hydrogeology (including depth to groundwater);
- identify the sources of contamination, the migration pathways, and actual or potential receptors of contaminants on or through air, soil, bedrock, sediment, groundwater, surface water, utilities, and structures at a contaminated site;
- collect and evaluate all data necessary for a fish and wildlife resource impact analysis (FWRIA) to determine all actual and potential adverse impact to fish and wildlife resources (if any);
- collect and evaluate all data necessary to evaluate the actual and potential threats to public health and the environment, including evaluating all current and future potential public health exposure pathways, and potential impacts to biota; and
- collect the data necessary to evaluate any release to an environmental medium and develop remedial alternative(s) to address the release.

Please note that this RI is to be performed by a 'Volunteer' under the NYSDEC Brownfield Cleanup Program (BCP) and, as such, investigation of off-site conditions is not included in the RI scope of work.

1.2 OBJECTIVES

This RI Work Plan (RIWP) was developed consistent with DER-10 and the USEPA Guidance for Conducting Remedial Investigation and Feasibility Studies under CERCLA (dated October 1988). A Phase I Environmental Site Assessment (ESA) was performed

at the subject Site in 2021 as presented in Ambient's Phase I ESA report dated 13 August 2021 (see Section 2.5). The Phase I ESA referenced investigations previously performed at the Site by NYSDEC and USEPA which identified constituents of concern (COCs) in soil and groundwater at the Site. Ambient performed a Hazardous Materials Surve at the site as presented a report dated 30 September 2021. That survey identified a significant amount of asbestos-containing material (ACM) in the structures, including friable and damaged ACM, as well as other hazardous building materials. The objectives of the RI are to further evaluate and delineate COCs at the Site to support an evaluation of feasible remedial alternative leading to cleanup and redevelopment of the Site under the BCP.

1.3 ORGANIZATION

This document presents the RIWP for the Site and is organized as follows.

- Sections 1 to 6 – RIWP - Section 1 outlines the purpose and objectives of the RI. Section 2 presents site background and setting information. Section 3 presents the results of previous evaluations and a conceptual site model. Sections 4 to 5 present the scope of work to be completed during the RI, and Section 6 presents a project schedule.
- Attachment 1 - Support Documentation.
- Attachment 2 - Sampling and Analysis Plan (SAP).
- Attachment 3 - Quality Assurance Project Plan (QAPP).
- Attachment 4 - Health and Safety Plan (HASP).

2.0 SITE BACKGROUND AND SETTING

2.1 SITE LOCATION

The HMQ Site Restoration and Steam Center BCP Site is comprised of tax map parcels 120.25-01-22 and 120.25-01-23 and consists of 0.803 acres on North Prospect Street in the Village of Herkimer, Town of Herkimer, Herkimer County ('the Site'). Parcel 1 at 220 North Prospect Street, identified as SBL #120.25-1-22 (0.673 acres), is occupied by the following buildings;

- 1874 Wooden Structure;
- 1880 Chimney Building;
- 1884 Connector Building;
- 1890 Factory Building;
- 1946 Plating Building;
- 1984 Steel Warehouse;
- Northeast portion of 1996 Split Block Warehouse.

Parcel 2 at 232 North Prospect Street is identified as SBL #120.25-1-23 (0.130 acres) and is occupied by the southwest portion of 1996 Block Warehouse Building.

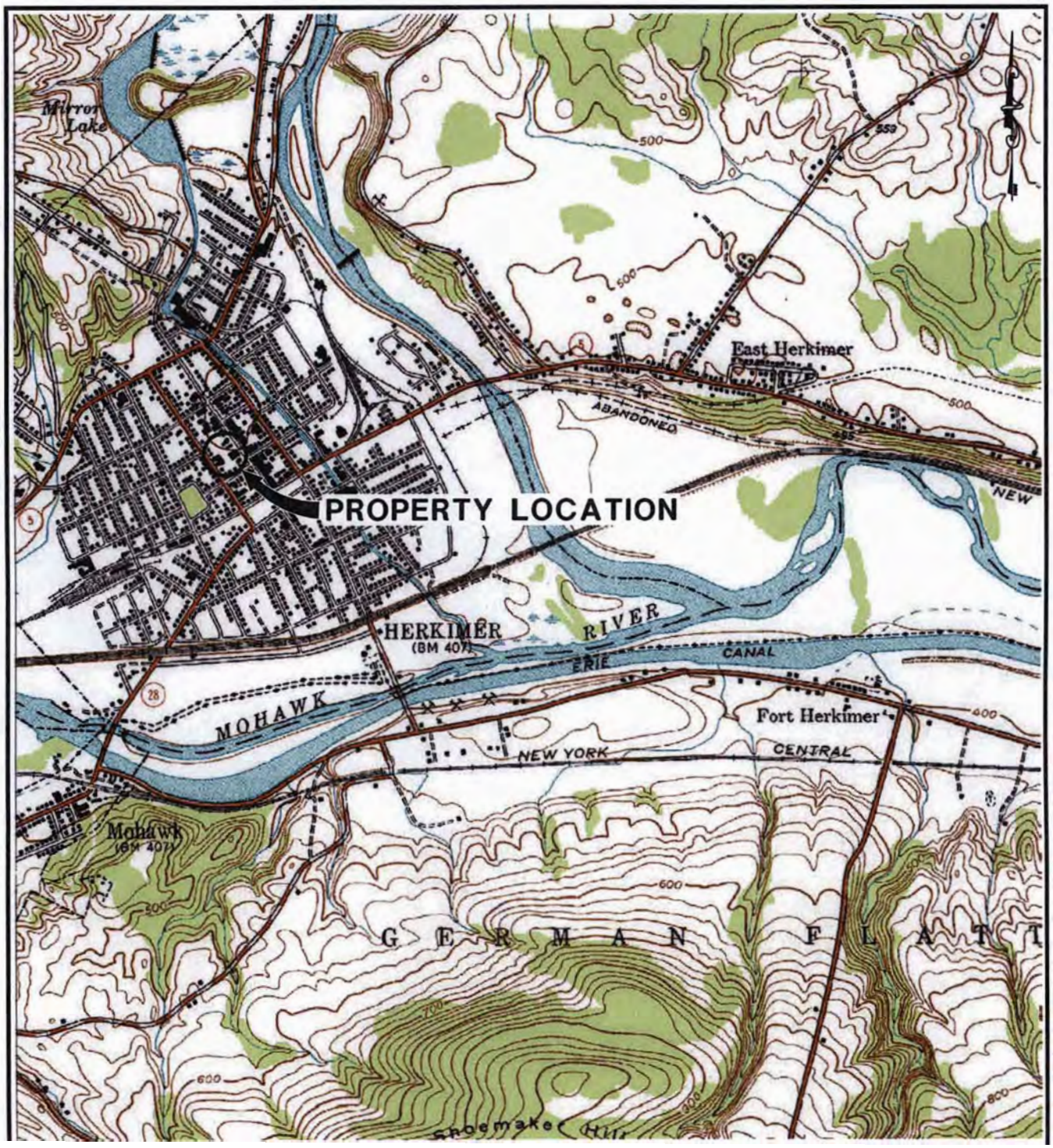
A loading dock is located on the western side of the 1996 Split Block Warehouse and parking area is present between 1890 Factory Building and 1874 Wooden Structure. Additionally, a courtyard area is located in the middle of the buildings.

The Site location is depicted on Figure 2-1. The BCP Site outline is shown on Figure 2-2 with parcel and building designations shown on Figure 2-3.

2.2 SURROUNDING PROPERTY USAGE

In general, the Site is bound to the east/northeast by North Main Street and to the west/southwest by North Prospect Street. The New York State Department of Environmental Conservation (NYSDEC) Herkimer Office adjoins the Site to the south, along with parking lots; and a parcel owned by the Village of Herkimer which includes

the public library and associated parking lot is located to the north. Land use in the immediate area is primarily commercial and residential.



SOURCE: USGS 7.5 MIN. TOPOGRAPHIC QUADRANGLES – HERKIMER, NEW YORK, 1948.

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

H. M. QUACKENBUSH FACILITY
220 NORTH PROSPECT STREET
HERKIMER, NEW YORK

SITE LOCATION

FIGURE NO.:
2-1

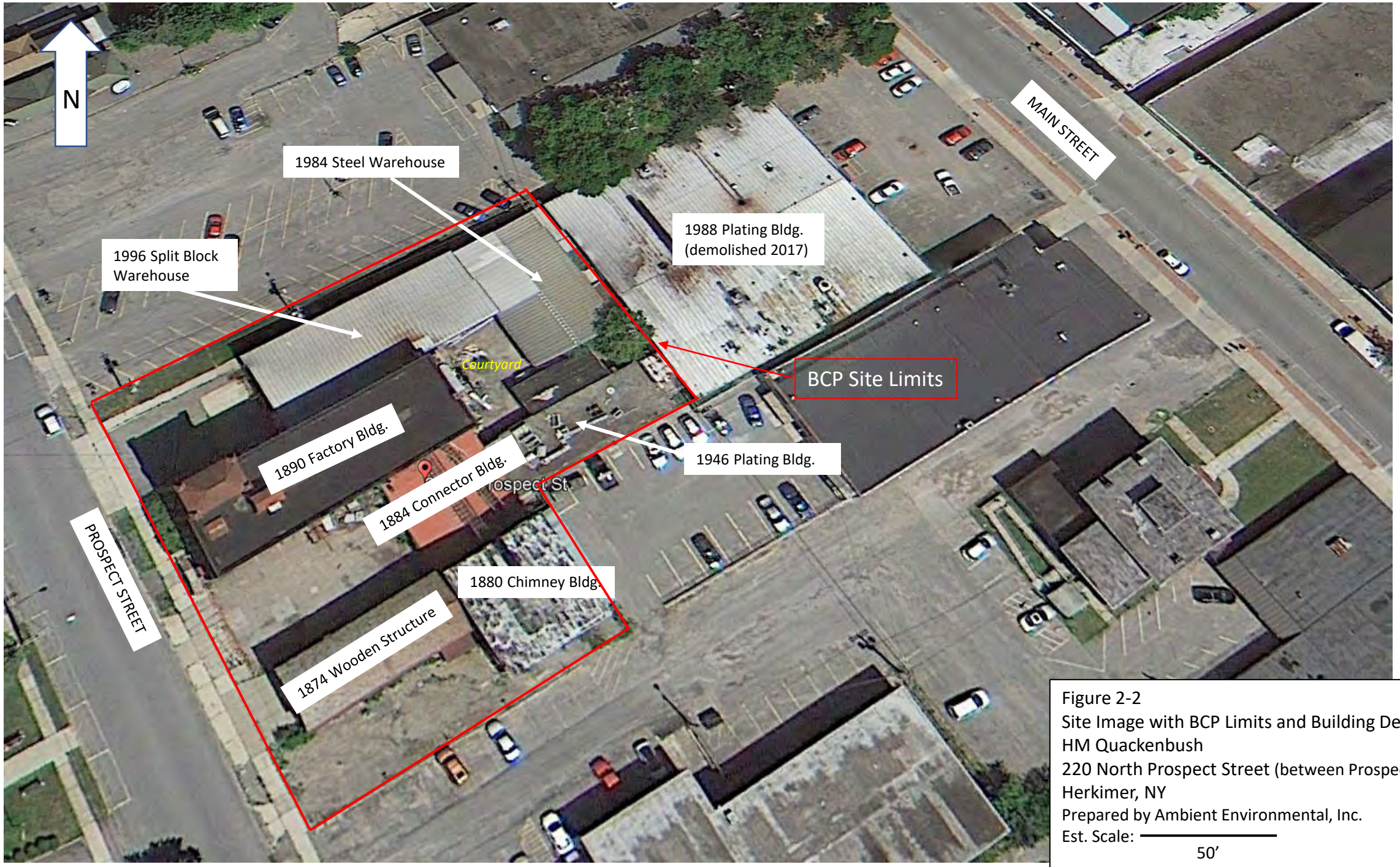


Figure 2-2
Site Image with BCP Limits and Building Designations
HM Quackenbush
220 North Prospect Street (between Prospect and Main)
Herkimer, NY
Prepared by Ambient Environmental, Inc.
Est. Scale: 50'

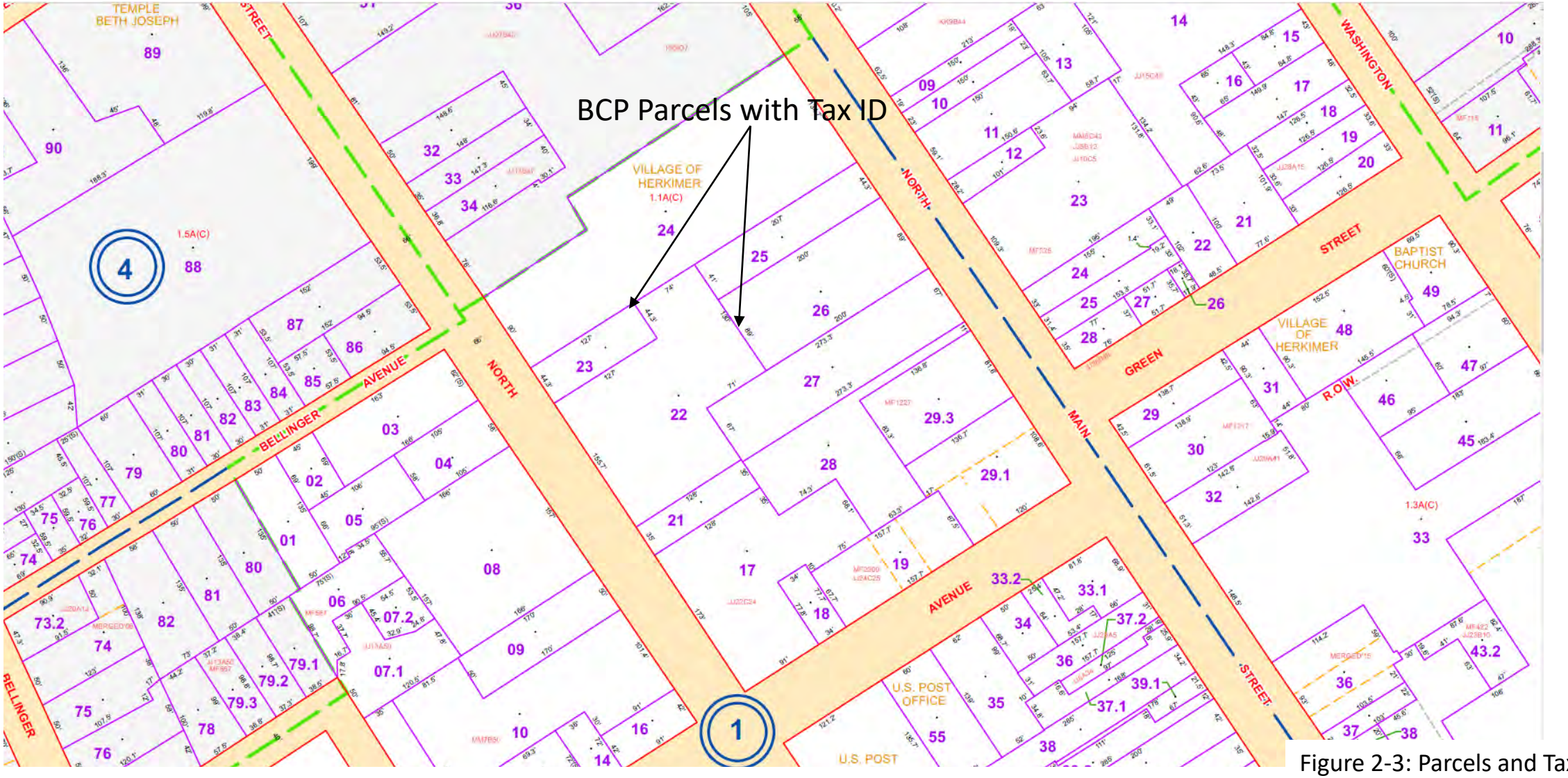
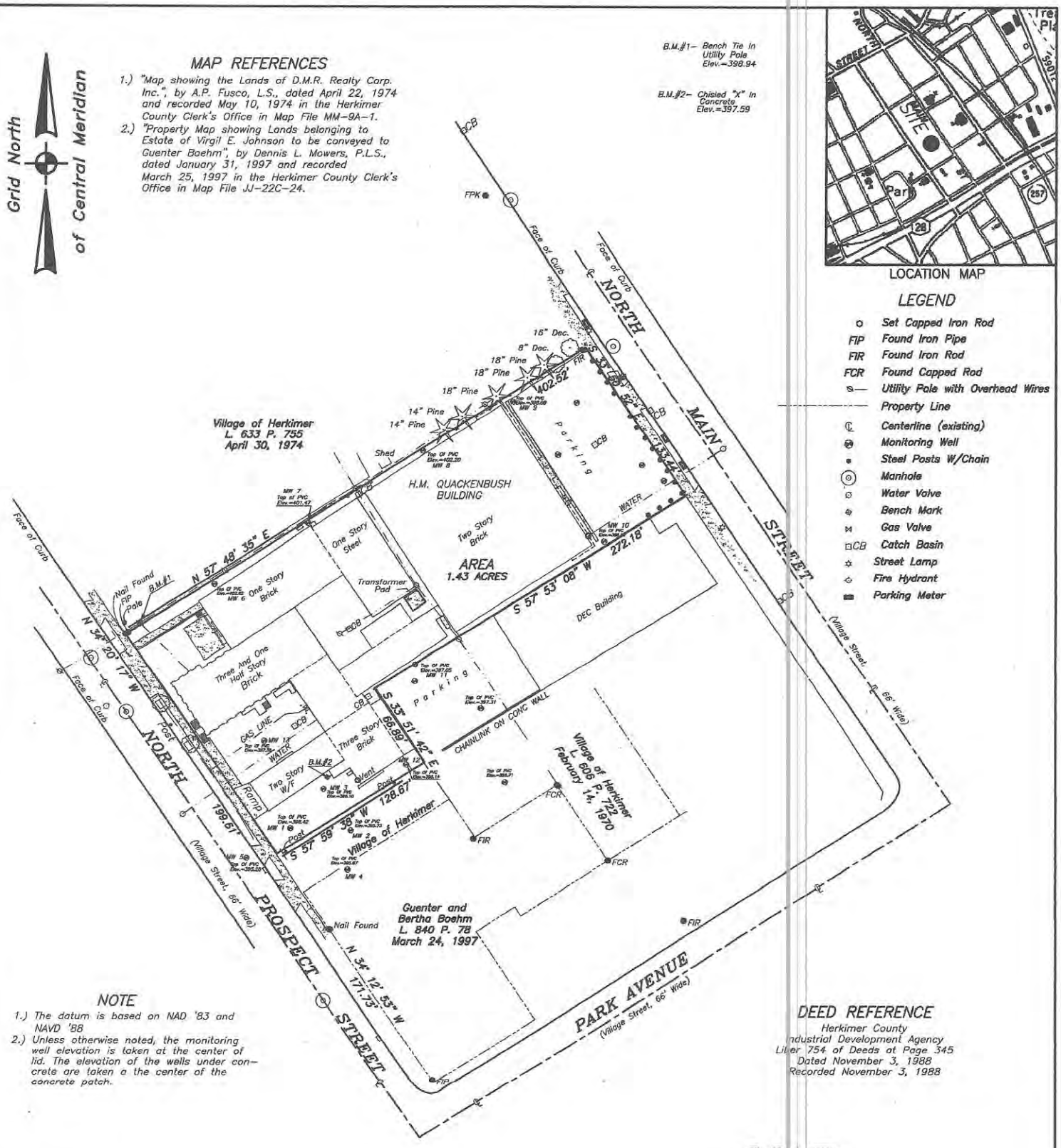


Figure 2-3: Parcels and Tax ID
HM Quackenbush
220 North Prospect Street
Herkimer, NY



NOTE

1.) The datum is based on NAD '83 and NAVD '88
2.) Unless otherwise noted, the monitoring well elevation is taken at the center of lid. The elevation of the wells under concrete are taken a the center of the concrete patch.

DEED REFERENCE

Herkimer County Industrial Development Agency
Liber 754 of Deeds at Page 345
Dated November 3, 1988
Recorded November 3, 1988

Only apparent easements (if any) are shown on this survey. No abstract of title was available.

Unauthorized alteration or addition to a survey map bearing a licensed land surveyor's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

Only copies from the original of this survey marked with an original seal shall be considered to be valid, true copies.

I, Susan M. Anacker, L.S., Lic. No. 50321, (N.Y.), do hereby certify that this Map was prepared by me from an instrument survey in accordance with the most current Code of Practice for Land Surveys, first adopted May 19,1973, by the N.Y.S. Association of Professional Land Surveyors. This Certification shall run only to the following:

1.) Herkimer County Industrial Development Agency

July 25, 2008

ORIGINAL STAMPED IN RED INK

Figure 2-4

MAP

of property of

HERKIMER COUNTY INDUSTRIAL DEVELOPMENT AGENCY

T.M. #120.025-1-22, 23, 25, 26

VILLAGE OF HERKIMER COUNTY OF HERKIMER

STATE OF NEW YORK

Dated: July 25, 2008 *Scale: 1" = 50'*

Survey and Map by: Susan M. Anacker, Professional Land Surveyor

Susan M. Anacker, L.S. Lic # 50321
11082 Davis Road East, Deerfield, New York 13502
(315) 724-6800

08-33

2.2.1 Geology

According to the US Department of Agriculture (USDA) Soil Conservation Survey (SCS), the underlying site soils included Herkimer gravelly silt loam with 0 to 3 percent slopes. The soil was generally described as well drained, gravelly silt loam formed in alluvial fans and generated from shale and varying amounts of sandstone and limestone. Information from previous investigations indicated that soils in the northern half of the Site consisted of an upper sand, silt and gravel material with some cobbles that extended about 12 to 14 feet below ground surface (bgs). A unit of gray clay with thin layers of fine sand and silt was present below the upper granular soil. However, soils in the southern half of the Site consisted of a continuous unit of sand, silt, gravel and cobbles, and extended the depth of the borehole.

2.2.2 Hydrogeology

Based on the interpretation of ground surface topography and proximity of Mohawk River, associated Mohawk River tributaries, and West Canada Creek, groundwater flow is estimated to be to the south/southwest towards the Mohawk River. Based on previous investigations, depth to groundwater in the northern portion of the Site was present at the interface between the upper unit and underlying clay unit, about 12 to 14 feet bgs. The water bearing zone on the south portion of the Site varied in depth from about 14.5 to 19 feet bgs.

2.2.3 Surface Water and Wetlands

In general, the surface of the Site is finished with impermeable surfaces, including buildings, former building foundations, and asphalt parking areas. Surface water from the Site is estimated to flow southwesterly, towards North Prospect Street or northeasterly toward North Main Street. Surface water runoff is generally expected to be captured by municipal storm sewer grates.

According to published reports, the Site does not lie in the 100-year floodplain as described by the Federal Emergency Management Agency (FEMA). There are no known state or federal mapped wetlands on the Site.

2.3 SITE HISTORY

The Site has a long and historically-significant history and is a key property of the Village of Herkimer historic district. The Site is listed on the New York State Register of Historic Places and the National Register of Historic Places. The property is currently owned by HMQ 1890, LLC.

The Site was initially developed in 1874 as the H.M. Quackenbush (HMQ) company for manufacturing of air guns and other 'novelties'. Additional buildings were constructed in 1880, 1884, and 1890 to support expanding manufacturing operations. HMQ expanded from air gun and novelty manufacturing to tool and hardware manufacturing. In-house plating facilities were expanded in 1946 with an additional plating building, and again in 1984 with a steel warehouse and in 1988 with a plating building. A warehouse and distribution area were constructed in 1996. Historic documents indicate that the 1874 Wooden Structure building was also used as steam laundry in 1900 and the Herkimer Democrat (press room) in the early 1900s.

According to a 2010 Site Characterization report[1], HMQ operated as a manufacturing and plating operation from the 1860s through 2005 and produced products such as nutcrackers, automotive parts, nails and gun parts. The manufacturing process required use of concentrated acids, bases, cyanides and cutting oils, and each building contained chemical storage areas for various materials used on-site. Thousands of gallons of plating waste remained in the buildings when operations ceased in 2005. This led to a removal action by USEPA to stabilize and dispose of all hazardous materials, which occurred from August 2005 and completed in April 2006. Since that time, the Site buildings have been vacant.

2.4 SUMMARY OF PREVIOUS INVESTIGATION

[1] Site Characterization Report, H.M. Quackenbush Facility, Site No. 6-22-024, 220 North Prospect Street, Village of Herkimer, Herkimer County, New York; completed by NYSDEC dated October 2010.

2.4.1 2021Phase I Environmental Site Assessment Report

A Phase I Environmental Site Assessment (ESA) conducted in July 2021 (report date 13 August 2021) identified several potential areas of concern as summarized below.

- The subject Site was owned and operated by HMQ from 1874 for the manufacture of novelty items, air guns, hardware, and utensils (i.e. nutcrackers) until operations ceased in 2005. Plating of items produced on-site and also produced by others and brought to the Site for finishing was conducted for many years. The manufacturing process required use of concentrated acids, bases, cyanides and cutting oils. Subsurface investigations were completed in 2006 by USEPA and in 2008 by NYSDEC (as presented in a 2010 NYSDEC report). Surface sampling results from the on-site building floors and walls indicated possible occupational exposures if the building were to be re-occupied. Soil and groundwater samples collected from various Site locations contained analytes at concentrations that exceeded current commercial use soil cleanup objectives (SCOs), indicating presence of contamination on-site.
- NY Spill #95-05909 was listed for the Site due to the presence of contaminated soil encountered during the 1995 removal of a 10,000-gallon fuel oil underground storage tank (UST) from the paved area just south of the 1874 Wooden Structure. Several investigations were completed in an attempt to delineate the extent of contamination associated with the #6 fuel oil release. Free product was identified in monitoring wells MW-1 and MW-3; however, due to the viscosity of the #6 fuel oil, remedial efforts to date have been unsuccessful in removing the free product. In the NYSDEC 2010 report, NYSDEC noted that petroleum-contaminated subsurface soil and groundwater indicated a potential for soil vapor intrusion associated with the Site. The presence of free product in two on-site monitoring wells and documentation of contamination represents a REC.

2.4.2 Historic Site Investigation and Corrective Action Reports

Numerous Site Investigations and corrective measures have been conducted at the Site, as summarized below.

- *"Subsurface Investigation, H.M. Quackenbush, Inc. 220 North Prospect Street, Herkimer, New York; NYSDEC Spill #95-05909" completed by Environmental Products & Services, Inc. (EP&S) for H.M. Quackenbush, Inc., dated October 31, 1995.*

  The purpose of the investigation was to determine the extent of #6 fuel oil contamination identified during the removal of the 10,000-gallon UST, located south/southwest of the chimney building. The investigation included completion of five soil borings and installation of three monitoring wells. The report indicated that during the 10,000-gallon tank removal, petroleum soil contamination was observed

above the water table, approximately 16 feet below ground surface (bgs). Soil excavation efforts were halted due to proximity of buildings to the northwest, village property to the southeast, and depth of contamination.

Soil borings were advanced to maximum depth of 22 feet bgs, with three soil borings extended an estimated six feet below the water table for installation of monitoring wells MW-1 to MW-3. Subsurface conditions generally included fine to coarse sand and gravel, with boulders and cobbles at various levels. Petroleum staining was identified in B-1, B-2, MW1, MW-2 and MW-3. Groundwater was encountered about 16 to 17 feet bgs. Free-phase #6 fuel oil was present at location MW3. Groundwater samples were collected from MW-1 and MW-2. EP&S used newly installed wells and existing wells from a previous investigation to the north, to determine groundwater flow to be southwesterly.

Groundwater testing results identified total volatile organic compounds (VOCs) at MW-1 at 68.4 ug/l and 2,296.5 ug/l at MW-2. EP&S recommended additional test borings in Village of Herkimer parking lot to assess the limits of affected groundwater. Additionally, due to the presence of free product at MW-3, EP&S recommended hand-bailing to recover the free product.

- *"Additional Subsurface Investigation, H.M. Quackenbush, Inc. 220 North Prospect Street, Herkimer, New York; NYSDEC Spill #95-05909" completed by Environmental Products & Services, Inc. (EP&S) for H.M. Quackenbush, Inc., dated February 1, 1996.*

  The purpose of the investigation was to further examine the extent of #6 fuel oil identified during the previous investigation. The investigation included completion of five additional soil borings and installation of two additional monitoring wells. Petroleum staining was identified in B-6, B-8, MW-4 and MW-5. VOC results for MW-4 were non-detect, and trichloroethene (TCE) was detected at a concentration of 17.10 ug/l in MW-5. However, the source of the TCE was not known.

  EP&S recommended that quarterly groundwater monitoring be done for a period of time, and that free-phase petroleum be removed from MW-3 by hand-bailing.

- *"Annual Investigation Report, Spill Number 9505909" by H.M. Quackenbush, Inc., dated February 13, 1998.*

  The summary letter was completed by H.M. Quackenbush (HMQ), which retained EP&S for services. The use of ORC Biosocks was discontinued in August 1997. HMQ indicated that quarterly sampling was done in September and December 1997. Groundwater flow was noted to be south to southwest; however, the 1997 data reportedly identified a north to northwesterly flow. Free product was present in MW-1, MSW-2, and MW-3. HMQ indicated that there has been little change in size,

movement or makeup of the contamination plume, and therefore reduced remedial work to hand-bailing once per month, and sampling once per year.

- *"Site Characteristic Findings, HMQ Facility, Herkimer, NY DEC 95-05909" by Strategic Environmental Management, Inc., (SEM) dated May 23, 2001.*

  The summary letter included findings, conclusions and recommendations associated with the former petroleum storage tank operations and fuel release for NY Spill 95-05909. Work included review of previous works, repair of well curb boxes and survey, groundwater monitoring, quarterly groundwater samples, remedial feasibility treatment study, preparation of report.

  Background information indicated that a 10,000-gallon UST was removed in 1995. Significant soil staining was noted, resulting in about 300 cubic yards of soil excavated and disposed off-site (NOTE- NYSDEC estimate that 148 cubic yards of soil was removed). Subsurface investigation work was completed from 1995 to 1999 that included 20 borings or drive points, installation of five monitoring wells, and 10 groundwater sampling events. SEM provided the following conclusions.

- Site soils consist of permeable sand and gravel from alluvial type stream deposits.
- Insufficient data exist to determine or verify that the subsurface soils impacted by the petroleum release need to be removed and/or remediated. Residual petroleum contamination appears to be limited to the capillary zone, at a depth of 12 or more feet bgs.
- Groundwater flow appears to be variable due to impact of seasonal drainage fluctuations; however, the small variation produces a relatively stable and predictable south-southeast flow pattern.
- The impact to groundwater quality from the former petroleum release was present as dissolved phase VOCs in 1995. However, natural attenuation activities, after tank removal, appear to have reduced the concentration of petroleum in groundwater. Groundwater quality has not violated state groundwater standards for VOCs or SVOCs in the last four sampling events. Dissolved phase concentrations of total petroleum hydrocarbons had decreased.
- Free phase petroleum product was historically present at MW-1, MW-2 and MW-3, but does not appear to be impacting groundwater quality. It does not appear to be mobile due to thick, viscous state; but appears to be trapped and/or congealed, preventing natural bio-degradation and groundwater elevations to be measured.
- Bioremediation, using the bioaccelerant tested, appears to be a potentially viable and cost-effective technique for site remediation.

  SEM recommended the following activities:

- Select a method to remove trapped, immobile and residual free-phase petroleum product from monitoring wells MW-1 and MW-3;
- In consideration that all groundwater standards are being met, request closure of this spill from NYSDEC with no further action being required;

- Remove and decommission each of the five monitoring wells after the project is closed by DEC.

  [**NOTE-** NYSDEC did not agree with SEM conclusions and did not close the spill]

- *"Superfund Contract Support Team, Sampling Report for the H.M. Quackenbush Site, Village of Herkimer, New York, February 21-24, 2006" completed by U.S. Environmental Protection Agency (USEPA) dated August 2, 2006.*

  This report states that the HMQ Site included about 1.5 acres located in a residential and commercial area of Herkimer. The 56,000-square foot facility included three buildings, with the first constructed in 1874 and the last in 1988. HMQ was a manufacturing and plating operation which produced novelty products such as nutcrackers, automotive parts, nails and gun parts. According to USEPA, manufacturing process required use of concentrated acids, bases, cyanides and cutting oils, and the Site buildings contained storage areas for the raw materials used in plating bath solutions or spent water solutions.

  Site activities ceased in 2005, at which time hazardous materials were left in place. NYSDEC completed an inspection on August 4, 2005 and discovered tanks and drums containing various electroplating wastes, open-topped bath solutions, sodium cyanide, laboratory chemicals, hundreds of drums containing unknown materials and noted portions of the building had a "fog-like" appearance. NYSDEC also reported the presence of process materials, unlabeled drums in various stages of decay, and spilled products on the floor. USEPA was notified, and USEPA subsequently removed all hazardous materials through the Emergency Remedial and Response Division (ERRD). USEPA was requested to complete soil and groundwater sampling to delineate the extent of contaminants underneath the buildings and the perimeter of the buildings to determine if any metal or base neutral extractable compounds have leaked from past operations. The purpose of the groundwater investigation was to determine if the contaminants have reached the groundwater in the vicinity of the Site.

  The investigation included completion of 27 soil borings and groundwater sample collection for wells associated with a known fuel oil spill. A total of 85 soil samples were collected for target analyte list (TAL) metals including cyanide, 11 soil samples for target compound list (TCL) volatile organic compounds (VOCs), and 26 soil samples for TCL semi-volatile organic compounds (SVOCs). USEPA noted that the highest results were generally found in the drainage basins and sump pits; and at B-5 which was collected from the Plating Basement. Most of the soil samples contained concentrations of at least one analyte that exceeded NY State guidelines for metals and polyaromatic hydrocarbons.

  A USEPA letter dated October 23, 2006 regarding the 2006 instigation noted that soil samples beneath the building floor identified the presence of heavy metals, including arsenic, lead, chromium, cadmium, and nickel. However, the concentrations were

below established guidelines that would cause USEPA to take corrective action. Two samples of the "oil stained" wooden flooring were analyzed for polychlorinated biphenyls (PCBs); analytical results did not identify the presence of PCBs. Groundwater samples were collected from monitoring wells in the southwestern portion of the property. Free-standing oil product was noted in MW-1 and MW-3. The three remaining wells were sampled, and several metals were present in the sample collected from monitoring well MW-5, located in the roadway on North Prospect Street. Based on the result, USEPA concluded that no further response actions were warranted at that time.

Based on Ambient's review of the provided analytical data, although hazardous concentrations of contaminants were not identified, several soil and groundwater sample results exceeded current commercial use SCO located throughout the Site, indicating presence of contamination remaining on-Site.

- *"Site Characterization Report, H.M. Quackenbush Facility, Site No. 6-22-024; 220 North Prospect Street, Village of Herkimer, Herkimer County, New York" completed by Remedial Bureau C, Division of Environmental Remediation, dated October 2010.*

  NYSDEC completed a Site Characterization in June through August 2008 of the HMQ Site. The goal of the Site characterization was to further evaluate the entire Site beyond the footprint of the facility building; and to obtain enough information to determine if the Site met the definition of a hazardous waste site by confirming or denying the presence of hazardous waste and determining whether or not the Site posed a significant threat to human health or the environment.

  The HMQ Site was identified as 1.5 acres in the middle of the Village of Herkimer, between North Prospect Street and North Main Street. Site features included at least three vacant industrial buildings, and paved parking areas. Plating operations reportedly occurred from the 1860s to 2005, and included over ten plating lines, with each line containing between 10 and 20 vats, each of which held between 100 and 300 gallons of acids, caustics, plating materials, cyanides and other solutions. Thousands of gallons of plating wastes including acids, corrosives, metal waste, cyanide, solvents, wastewater chemicals and sludges were left when the facility was vacated in 2005. Additionally, hundreds of containers ranging from small lab bottles to 55-gallon drums were reportedly present throughout the facility, and an on-site lab contained small quantities of hundreds of chemicals. Further, bags of dried sludges from the wastewater treatment plant were found stored on-site. USEPA conducted an emergency removal to stabilize and dispose of all hazardous materials, which was completed by April 2006.

  Investigation activities conducted by NYSDEC included a ground penetrating radar (GPR) survey over designated portions of the Site; surveying; surface soil sampling; concrete floor sampling; portable XRF measurements; gauging existing wells; a soil boring program that included 31 soil borings; installation of eight monitoring wells;

and a groundwater monitoring program. The GPR survey was done to identify the potential presence of USTs from former HMQ operations and/or the former Sears Gas Station previously located at northeast end of the Site. A suspect anomaly was located near the former gas station, in similar size and shape of an UST.

The NYSDEC investigation concluded that VOC and SVOC contamination in the groundwater is minor and predominantly associated with the petroleum spill area. Pesticides and PCBs were not detected in the groundwater samples. Elevated concentrations of metals were noted in the groundwater; however, there are no surface water bodies on or within one half mile of the Site, and municipal water and sewer are supplied. Elevated metals concentrations were generally detected in the footprint of the original facility, with concentrations in the majority of samples below commercial use soil cleanup objectives (SCO).

Surface metals analysis was completed using a portable XRF on interior and exterior building surfaces. Numerous metals were detected by the XRF at elevated concentrations, including cadmium, chromium, copper, lead, nickel, silver, zinc, and arsenic at concentrations above commercial use SCO. Two paint chip samples were collected: on the concrete ramp and of peeling paint in the chemical storage area. Paint chip analysis confirmed the presence of lead-based paint.

Based on the investigation, NYSDEC indicated that the Site does not meet the definition of a hazardous waste site, since hazardous wastes to not exist on-site, nor does it pose a significant threat to human health or the environment. Therefore, the Site did not qualify for placement on the Registry of Inactive Hazardous Waste Disposal Sites. NYSDEC also noted that surface sampling results from the on-site building floors and walls indicated possible occupational exposures if the building were to be re-occupied. In addition, should any intrusive activity be associated with future Site use, appropriate precautions should be taken with regard to management and disposition of potentially contaminated soils. Additionally, the Site will continue to remain a spill site. The petroleum-contaminated subsurface soil and groundwater indicated a potential for soil vapor intrusion associated with Site buildings, and NYSDEC stated that this issue should be evaluated in the context of any future remedial program.

Based on Ambient's review of the provided analytical data, although hazardous concentrations of contaminants were not identified, several soil and groundwater sample results exceeded current commercial use SCO located throughout the Site, indicating presence of contamination remaining on-Site.

3.0 INITIAL EVALUATION

A detailed summary of the findings of the previous investigation specific to each media sampled onsite is provided in the following sections.

3.1 REVIEW OF EXISTING DATA

Maps showing the sampling locations, soil borings, and monitoring wells including analytical data summary tables are presented in Attachment 1 for reference. A summary of findings for each of the sampled media is presented below. NOTE- NYSDEC requested that data be compared to NYSDEC Part 375 Restricted Residential Use Soil Cleanup Objectives (RRSCOs) due to planned use as a 'school' and public area.

3.1.1 General Characteristics of Soils

Information from previous investigations, as summarized in Section 7.3, indicated that soils in the northern half of the Site consisted of an upper sand, silt and gravel material with some cobbles that extended about 12 to 14 feet below ground surface (bgs). A unit of gray clay with thin layers of fine sand and silt was present below the upper granular soil. However, soils in the southern half of the Site consisted of a continuous unit of sand, silt, gravel and cobbles, and extended the depth of the borehole.

3.1.2 General Chemical Characteristics of Soils

Soil containing concentrations of metals exceeding RRSCOs were encountered throughout the Site. SVOCs were detected in soil at concentrations exceeding RRSCOs at various locations. Concentrations of VOCs in soil historically did not exceed RRSCOs.

3.1.3 Chemical Characteristics of Soils in Comparison to SCOs

A USEPA Site Investigation report dated August 2, 2006 summarizes data generated by their investigation that included completion of 27 soil borings and collection of groundwater samples from wells associated with a known fuel oil spill. The stated purpose of the USEPA investigation was *"to delineate the levels of contaminants underneath the buildings and in the perimeter of the buildings to determine if any metal*

or base neutral extractable compounds have leaked from past operations." A total of 85 soil samples were collected for target analyte list (TAL) metals including cyanide, 11 soil samples for target compound list (TCL) volatile organic compounds (VOCs), and 26 soil samples for TCL semi-volatile organic compounds (SVOCs).

Concentrations of metals in most samples exceeded NYSDEC Part 375 Unrestricted Soil Cleanup Objectives (SCOs). Furthermore, the number of samples exceeding Restricted Residential SCOs is summarized below (**Note-** during the pre-application meeting for this Site, NYSDEC requested that data be compared to Restricted Residential SCOs due to planned use as a 'school' and public area).

Metal	Samples > RRSCO	Max. (ppm)
Arsenic	5	26
Cadmium	29	2,210
Chromium	10	4,840
Copper	19	12,500
Lead	13	932
Nickel	16	45,900
Zinc	8	84,800
Cyanide	9	596

It is important to note that USEPA did not map the locations at which subsurface soil samples were collected. Based on USEPA-provided samples descriptions, Ambient estimated sample locations and placed locations on a Site map (attached). Soil samples were collected under all manufacturing areas to depths up to 16 feet below finished floor. Elevated concentrations of metal were detected at all locations, including below the '1988 Plating Building' which has since been demolished.

The following SVOCs were detected in three USEPA-collected soil samples at concentrations exceeding Restricted Residential SCOs: benzo(a)anthracene, chrysene, bis(2-ethylhexyl)phthalate, benzo(b)fluoranthene, benzo(k) fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)-pyrene and dibenzo(a,h) anthracene.

VOCs were not detected in USEPA-collected soil samples at concentrations exceeding Restricted Residential SCOs.

NYSDEC completed a Site Characterization in June through August 2008 of the HMQ Site, as presented in their report dated October 2010. Investigation activities conducted by NYSDEC included a ground penetrating radar (GPR) survey over designated portions of the Site; surveying; surface soil sampling; concrete floor sampling; portable XRF measurements; gauging existing wells; a soil boring program that included 31 soil borings; installation of eight monitoring wells; and a groundwater monitoring program.

Metals were detected in the majority of the surface and subsurface soil samples, with concentrations above Restricted Residential SCOs summarized below.

M

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t a metal	Surface samples > RRSCO	Max. (ppm)	Subsurface samples > RRSCO	Max. (ppm)
l Arsenic	0	NA	6	248.0
Cadmium	7	3,770.0	27	581.0
s Chromium	4	7,110.0	0	NA
Copper	4	29,400.0	1	271.0
Lead	3	1,280.0	4	1850.0
w Mercury	3	1.8	11	19.4
e Nickel	4	11,800.0	10	1540.0
Zinc	2	16,300.0	0	NA
r Cyanide	3	46.7	6	115.0
e				

VOCs and pesticides were detected in several NYSDEC-collected soil samples at concentrations below Restricted Residential SCOs

The SVOCs benzo(b)fluoranthene, and indeno(1,2,3-cd)-pyrene were detected in two surface soil samples at concentrations slightly above Restricted Residential SCOs.

It is important to note that NYSDEC also collected concrete floor samples at 15 locations throughout the facility. The concentration of at least one metal exceeded Commercial SCOs at each location.

3.1.4 General Characteristics of Groundwater

Based on previous investigations, depth to groundwater in the northern portion of the Site was present at the interface between the upper unit and underlying clay unit, about 12 to 14 feet bgs. The water bearing zone on the south portion of the Site varied in depth from about 14.5 to 19 feet bgs. Groundwater flow is estimated to be to the south/southwest towards the Mohawk River.

3.1.5 Chemical Characteristics of Shallow Groundwater

Groundwater samples were collected from four temporary wells set during the Phase II Limited Site Investigation at the Site in July 2018.

Samples from a total of three monitoring wells were analyzed for Base/Neutral Acid Extractable compounds (*BNAs) and total metals during the EPA sampling event. Results were compared to the following ARARS: *National Primary Drinking Water Regulations* (Title 40 CFR - Part 141, 1997) which can be found as Appendix I and the NYSDEC *Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations* (6 NYCRR Part 703). None of the organic analytical results were above either ARAR. The inorganic samples exceeded the NYSDEC ARAR for antimony, cadmium, and nickel (as well as iron, manganese and sodium).
[*BNAs are a subset of Sem-Volatile Organic Compound, SVOCs per EPA Method 625]

NYSDEC groundwater sampling conducted in 2008 detected free product in three groundwater monitoring wells located near the former UST (MW-1, MW-3 and MW-4). Concentrations of benzene and chlorobenzene exceeded the GWS in the sample collected from MW-3. The concentration of trichloroethene exceeded the GWS in the sample collected from MW-5. Concentrations of SVOCs did not exceed GWS. Pesticides and PCBs were not detected in groundwater samples.

Concentrations of several metals exceeded their associated GWS in several wells, including cyanide in MW-12 and MW-13; cadmium in MW-5, MW-11, MW-12 and MW-13; nickel in MW-2, MW-3 and MW-13; silver in MW-2 and MW-13; zinc in MW-13; and mercury in MW-9, MW-12 and MW-13. Concentrations of several other metals such as iron and manganese also exceeded GWS but these are not considered to be of consequence related to other analytes. Thallium was reported at concentrations exceeding the GWS in every groundwater sample.

Extensive groundwater sampling conducted by the previous operator and reported to NYSDEC as part of the investigation related to Spill No. 9505909 detected free product consistently in several well, and consistently recorded VOC and SVOC exceedances over time in groundwater samples from wells in the former UST area.

3.2 STANDARDS, CRITERIA AND GUIDANCE

Standards, Criteria and Guidance (SCGs) mean standards and criteria that are generally applicable, consistently applied, and officially promulgated, that are either directly applicable, or that are not directly applicable but are relevant and appropriate. This term incorporates both the CERCLA concept of applicable or relevant and appropriate requirements (ARARs) and the EPA's to be considered (TBCs) category of non-enforceable criteria or guidance. For purposes of this SI, soil SCGs means the soil cleanup objectives and supplemental soil cleanup objectives identified in 6 NYCRR 375-6.8 as well as NYSDEC CP-51: Soil Cleanup Guidance. Water standards (including groundwater and surface water) are presented in 6 NYCRR Part 700-706: NYSDEC Water Quality Regulations for Surface Waters and Groundwater. NYSDEC Technical and Operational Guidance Series 1.1.1: ambient water quality standards and guidance values are also considered SCGs and will be referenced in the absence of water quality standards.

4.0 RI OBJECTIVES

Analytical data indicate that soils and groundwater across various areas of the Site contain various analytes at concentrations in excess of SCGs. Data indicate that soil sampled contained metals and SVOCs at concentrations in excess of NYSDEC PART 375 SCOs and that groundwater samples contained VOCs, SVOCs and metals at concentrations in excess of 6 NYCRR Part 700-706 groundwater standards (GWS).

Based on the available laboratory analytical data, findings of previous investigations, and site history it has been established that there is a need to further define the potential environmental and human health hazards associated with the Site. The objectives of the RI for the Site are to therefore define these hazards in a manner consistent DER-10 as follows:

- delineate the areal and vertical extent of contaminants in all media at the site;
- determine the surface and subsurface characteristics of the site, including geology and hydrogeology;
- identify the sources of contamination, the migration pathways (including soil vapor), and actual or potential receptors of contaminants on or through air, soil, sediment, groundwater, surface water, utilities, and structures at the site;
- collect and evaluate all data necessary for a fish and wildlife resource impact analysis (FWRIA) to determine all actual and potential adverse impact to fish and wildlife resources (if any);
- collect and evaluate all data necessary to evaluate the actual and potential threats to public health and the environment, including evaluating all current and future potential public health exposure pathways, and potential impacts to biota; and
- collect the data necessary to evaluate any release to an environmental medium and develop remedial alternative(s) to address the release.

4.1 DATA QUALITY OBJECTIVES (DQOS)

DQOs are based on the concept that various uses of data collected during the RI require varying degrees of data quality. Data quality is defined as the degree of certainty in a

data set with respect to precision, accuracy, representativeness, completeness and comparability (PARCC). DQOs are qualitative and quantitative statements specifying the required quality of data necessary to support RI activities. These activities include site screening, site characterization, risk assessment and support of the evaluation of engineering alternatives and selection of remedial alternatives. DQO development has been integrated into the scoping process and the results incorporated into the Work Plan, SAP, HASP and QAPP. The categories of data quality to be utilized during the RI at the Site are consistent with those outlined in the USEPA Guidance document entitled *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, dated October 1988, and are described below.

- DQO Level 1 – Field Screening Using Portable Instrumentation: Data used for site health and safety monitoring and field screening during site characterization activities. The data generally determines the presence or absence of certain constituents and is generally qualitative rather than quantitative. Field screening data provides the lowest data quality.
- DQO Level 2 – Field Laboratory Analysis: Data used for field activities during site characterization activities, evaluation of remedial alternatives, engineering design and monitoring during implementation of alternatives. The data generally determines levels of certain constituents relative to a calibration standard and is generally qualitative or quantitative.
- DQO Level 3 – Engineering Level Data: Data used for site characterization, risk assessment, evaluation of alternatives, engineering design and monitoring during implementation of alternatives. The data is quantitative and is generated using EPA analytical laboratory procedures; however, it does not include full CLP documentation.
- DQO Level 4 – Laboratory Analysis: Data used for risk assessment, evaluation of alternatives and engineering design. The data is quantitative and is generated using EPA analytical laboratory procedures. All analyses require full CLP analytical protocols including reports and data validation procedures. The majority of the data generated during the RI will be DQO Level 4.

- DQO Level 5 – Non-Standard Special Analytical Services: Data for use when analysis by non-standard procedures is required to obtain specific or lower detection limits or analyses that are not of a nature typically performed under the CLP Routine Analytical Service (RAS) Program.

DQOs have been developed for the tasks outlined in Section 5 of this Work Plan. The DQOs are designed to support remedial alternative selection and risk assessment tasks associated with the RI process. During the RI process it is anticipated that DQO Levels 1 and 4 will primarily be utilized.

DQO Level 1 data (field screening) will be generated during site characterization activities including: head space screening of soil samples; health and safety monitoring; screening of test pits and soil borings; and collection of surface water and groundwater parameters.

DQO Level 4 data (laboratory analysis by CLP/ASP Methods) will be the primary objectives for the RI process.

DQO Level 2 data (field analysis), DQO Level 3 data (engineering) and DQO Level 5 (non-standard) data are not expected to be generated as part of the initial RI activities. However, these data at these DQO levels may be generated during supplemental activities, if required.

5.0 RI TASKS

The task plan elements for the RI are as follows:

- Task 1 – Project Planning
- Task 2 – Community Relations
- Task 3 – Field Investigation
- Task 4 – Sample Analyses/Validation
- Task 5 – Data Evaluation
- Task 6 – Risk Assessment
- Task 7 – Remedial Investigation Report

5.1 REMEDIAL INVESTIGATION TASKS

Sections 5.2 to 5.9 describe the tasks that will be completed as part of the RI. Detailed specifications, field procedures and methodologies associated with the various tasks are presented in the attached SAP, HASP, and QAPP (Attachments 2, 3, and 4).

5.2 TASK 1 – PROJECT PLANNING

Project planning includes work which must be performed in order to produce the planning documents and project schedule necessary to execute the RI. Work performed as part of this task included site visits and interviews with facility personnel; the evaluation of existing data; the evaluation of historic information including maps, aerial photographs, and miscellaneous file information; confirmation of SCGs; finalize DQOs; and final scoping of the RI.

5.3 TASK 2 – COMMUNITY RELATIONS

HMQ 1890, LLC anticipates that NYSDEC will take the lead in community relations with regard to the RI at the Site. HMQ 1890,LLC assisted by preparing and submitting a Citizens Participation Plan (CPP) dated July 2022 in cooperation with NYSDEC.

5.4 TASK 3 – FIELD INVESTIGATION

This section describes the tasks that will be completed at the Site to further characterize onsite conditions and to support the preparation of risk assessments. Detailed specifications, field procedures and methodologies associated with the various tasks are presented in the attached SAP, HASP, and QAPP (Attachments 2, 3, and 4). Various samples will be analyzed for some or all of the following as describe in the QAPP: TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270), TAL or RCRA metals (Method 6010/7470 for mercury/9010 for cyanide), PCBs (Method 8082), Pesticides (Method 8081) PFASs (PFOA and PFOS by EPA Method Mod 537.1), and 1,4-Dioxane (Method 8270).

5.4.1 Site-wide Ground Penetrating Radar Survey

The first step in the Remedial Investigation process will be a Ground Penetrating Radar Survey (GPRS) of the entire accessible, exterior portion of the Site. A 400 MHz GPR antenna mounted in a stroller frame which rolls over the surface will be utilized for the GPRS. Data will be displayed on a screen and marked in the field in real time. GPRS details are provided in the SAP. Results of the GPRS, such as the discovery of potential buried tanks, dry wells or other structures, will be used to adjust site investigation activities as appropriate.

5.4.2 Soil Borings

An estimated 12 soil borings (excluding borings for monitoring wells) will be advanced to various depths below ground surface (bgs) based on field screening and site conditions. Soil borings will be advanced using 'direct push' technology to collect soil samples continuously from grade to total depth. Soil borings will be logged and continuously scanned with a PID by an on-site geologist/qualified environmental professional. Detailed logs describing soil type, color, odor, moisture, etc. and all detected PID readings will be prepared for each boring. Additional soil borings may be advanced based on field observations. In general, borings will be advanced to approximately 16 feet below grade. An estimated three samples per boring will be analyzed for TAL

metals with additional samples 'archived' for future analyses if needed (see below). One-half (50%) of those samples will be analyzed for PFAS. Based on field screening and observations, an estimated six samples (primarily collected from the former UST area) will be analyzed for VOCs and SVOCs. Four selected soil samples will be analyzed for PCBs and 1,4-Dioxane.

5.4.3 Monitoring Well Installations

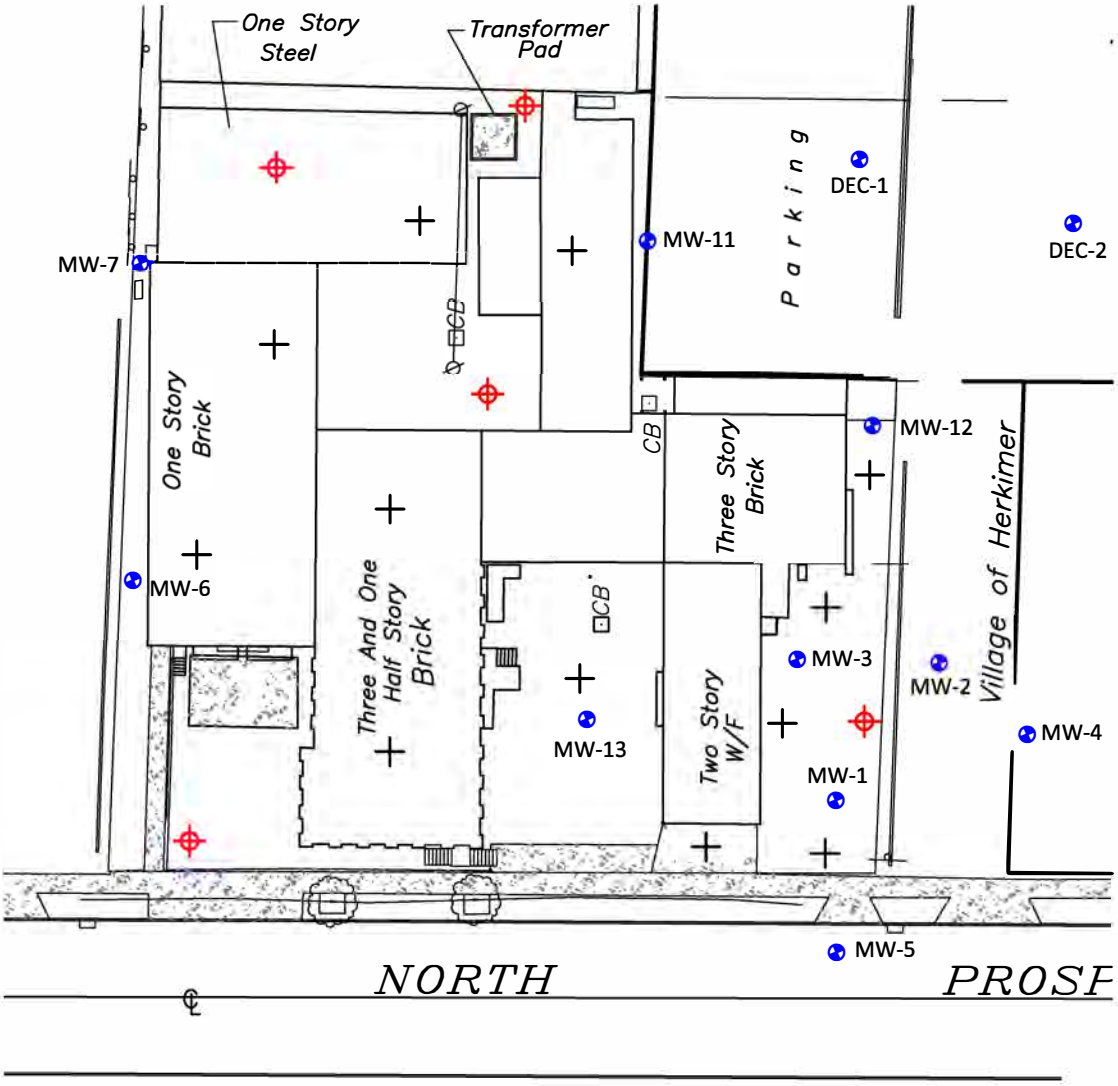
An estimated seven monitoring wells exist at the Site. Ambient will inspect, repair and develop the existing wells, if possible, to prepare the existing wells for sampling. Additionally, five groundwater monitoring wells will be installed to complement the existing well network (additional wells will be installed if existing monitoring wells are determined to be unusable; any unusable wells will be closed per NYSDEC Division of Environmental Remediation Groundwater Monitoring Well Decommissioning Policy).

Soil samples from borings associated with monitoring well installation will be logged and field screened with a PID to monitor for the potential presence of VOC vapors as described for soil borings. Each of the monitoring wells will be constructed of two-inch-diameter PVC riser and ten feet of two-inch-diameter, 0.01-inch slotted PVC well screen. The well screen will be installed to "straddle" the top of the water table in the shallow, unconfined groundwater unit. The actual depth of the wells will be dependent on observed field conditions.

A sand pack will be installed around the well screens and will extend one to two feet above the top of the screens. A one-foot to two-foot-thick seal of hydrated bentonite pellets will be installed above the sand pack to backfill the remainder of the well annulus to within one foot of ground surface. A flush-mount secured curb box will then be installed to finish each well. Following installation, reference points will be marked on the top of the PVC at each well location to allow for surveying by a licensed surveyor.

Well construction and decommissioning will be performed by a NYS registered driller.

Anticipated soil boring and well point locations are provided on Figure 5-1.



LEGEND

+ = SOIL BORING (SB)
△ = SURFACE SOIL (SS)
= EXISTING MONITORING WELL (MW)
= NEW MONITORING WELL

REVISIONS		
DATE: 10/07/2022	SCALE: 1" = 50'	
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PREPARED FOR: HMQ 1890, LLC

DRAWING TITLE
HMQ RI SITE ACTIVITIES

DWG. NO.

Figure 5-1

5.4.4 Monitoring Well Development

Development of all new and existing monitoring wells will begin after final completion of the monitoring well network. Water level measurements will be collected prior to well development. Peristaltic pumps will be used for well development, purging and sampling (see below). A flow rate will be established to achieve a stable pumping level that will remain constant during well development (see section 5.4.5). Development water will be placed in a drum or tank, properly labeled and stored on-site for future proper disposal per DER-10 Section 3.3 (e) 5.

5.4.5 Soil and Groundwater Sampling

An estimated five soil samples (one per well point soil boring) will be collected during advancement of borings for well installation. Soil samples will be analyzed for TCL VOCs, TCL SVOCs, and TAL metals. If elevated PID readings or other field observations indicate the potential for contamination in soil, additional soil samples will be obtained for laboratory analysis.

Groundwater samples will be collected from the seven existing groundwater monitoring wells and five new groundwater monitoring wells no sooner than 48 hours after final well development. Water level measurements will be collected prior to pre-sampling purging. Peristaltic pumps will be used for well development, purging and sampling. A flow rate will be established to achieve a stable pumping level that will remain constant during well development, while monitoring the indicator parameters for stabilization during pre-sampling purging, and while collecting the samples. Emphasis should be put on minimizing and stabilizing pumping stress. During pre-sampling well purging, monitor indicator field parameters (turbidity, temperature, specific conductance, pH, ORP, DO) will be measured at approximately five-minute intervals. All measurements, except turbidity, will be obtained using a flow-through-cell. Samples for turbidity measurements will be obtained before water enters the flow-through-cell. Purging will be considered complete and sampling will begin when all the above indicator field parameters have

stabilized as defined in the *USEPA Region I Low Stress (Low Flow) Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (July 30, 1996 Revised: September 19, 2017).*

Purge water will be placed in a drum or tank, properly labeled and stored on-site for future proper disposal per DER-10 Section 3.3 (e) 5. Following purging, groundwater samples will be collected directly into laboratory-supplied jars and analyzed for TCL VOCs, TCL SVOCs, and TAL metals (including cyanide). Six samples will also be analyzed for PFASs and 1,4-Dioxane.

5.4.6 Evaluation of Areas of Concern (AOCs)

Several 'pits', catch basins and floor drains exist throughout the buildings. Those features need to be evaluated to determine if they have potentially released contaminants of concern to the environment. As necessary, removing waste from the feature and disposing of the waste, cleaning the features, and inspecting the structures (possibly including hydrostatic testing) will be conducted to determine if the features need to be further evaluated. Any generated waste will be properly handled, characterized (see Work Plan section 5.4.1), and disposed.

5.4.7 Interior Samples

Interior samples will be collected and analyzed to determine what remedial efforts might be needed in portions of buildings to be restored and re-purposed Interior samples will be collected as summarized below.

Concrete samples. Samples of concrete floors will be collected in the former plating area (basement of factory building), the connector building, and the former plating building. An estimated ten samples will be analyzed for RCRA metal, and an estimated four samples will also be analyzed for PCBs.

Wood samples. Oil-soaked wood is present in the factory building. An estimated six wood samples (two per floor) will be collected and analyzed for PCBs.

5.4.8 Surface Soil Samples

The majority of the Site is covered with buildings and paved parking. Surface soil samples will be collected from accessible areas (including areas exposed by building demolition). An estimated four surface soil samples will be collected and analyzed for SVOCs, TAL metals, Pesticides, and PCBs. Two samples (50% of the total) will also be analyzed for PFAS. Surface soil samples will not be analyzed for VOCs unless PID monitoring indicates the potential presence of VOCs.

5.4.9 Surveying

Upon completion of all field tasks, the horizontal and vertical locations of all soil borings, monitoring wells, and surface samples will be surveyed by a New York State (NYS) licensed land surveyor and updated on the existing site survey map. Vertical elevations will be recorded to the nearest 0.01-foot. Top-of-PVC casing elevations for each monitoring well will also be recorded to the nearest 0.01-foot to establish water table elevations and groundwater flow direction.

5.4.10 Waste Characterization Sampling

It is anticipated that waste materials in the former factory and wastewater treatment areas will need to be disposed off-site. As such, samples of waste material will be collected during the RI and analyzed for waste characterization parameters such as VOC, SVOC, PCBs, metals, ignitability, reactivity and corrosivity. Some analyses will include TCLP extraction. Waste materials may include sludge from the interior waste pit, floor drains, and sumps.

5.4.11 Soil Vapor Evaluation

The results of the initial soil and groundwater evaluation will be used to determine the locations of soil vapor sampling points across the Site. The soil vapor sampling will also consider future use. It may be prudent to perform soil vapor sampling after buildings are demolished; therefore, the timing of the soil vapor evaluation will be discussed with NYSDEC. Once the scope and timing of the soil vapor evaluation is determined, a soil vapor sampling workplan will be developed as an addendum to the RIWP for review and approval by NYSDEC. The workplan approach and procedure will be in accordance with

NYSDEC DER-10 (May 2010) Section 3.6. The soil vapor sampling workplan will be implemented upon approval by NYSDEC.

5.4.12 Interim Remedial Measures

It may be beneficial to address potentially-contaminated soil and groundwater in the area of the former No. 6 fuel oil UST as an Interim Remedial Measure (IRM). IRM activities may include test pit excavation to determine the extent of any remaining petroleum-contaminated soil and excavation, transportation, and off-site disposal of affected soil. Pumping affected groundwater from the open excavation and/or introducing chemical oxidation agents directly in the open excavation may also be appropriate. If deemed appropriate by the Volunteer and NYSDEC, an IRM work plan would be developed by Ambient for review and approval by NYSDEC.

5.5 TASK 4 – SAMPLE ANALYSIS VALIDATION

Samples will be analyzed by a New York State Department of Health (NYSDOH) ELAP-certified laboratory utilizing USEPA SW-846 third addition methodologies as appropriate.

Analytical results will be reported using ASP 2000 category B QA/QC backup data packages as described in the most current DEC Analytical Services Protocol (ASP). Site-specific quality assurance/quality control (QA/QC) samples, including matrix spike (MS)/matrix spike duplicate (MSD) samples and field duplicates will also be collected/analyzed, as appropriate. To the extent possible, dedicated sampling equipment will be used during sample collection such that equipment field blanks will not be required. Following receipt, the analytical data will be checked for completeness and accuracy; it will then be validated by a NYSDEC-approved data validation chemist and a Data Usability Summary Report (DUSR) will be prepared.

Data generated for waste characterization sampling will not require data validation.

5.6 TASK 5 – DATA EVALUATION

Following validation, the analytical data will be reviewed, compared to applicable SCGs as previously described, and placed on tables.

5.7 TASK 6 – RISK ASSESSMENT

5.7.1 Human Exposure Evaluation

A qualitative human exposure evaluation, which describes the potential for human exposure to site-related constituents, will be prepared for the Site. The exposure evaluation will use information regarding current and future land use scenarios and available analytical data to evaluate the magnitude of potential exposure to human receptors. The human exposure assessment will include a discussion of the environmental setting of the Site, an identification of constituents of interest, an identification of potentially complete exposure pathways, and a qualitative assessment of identified exposure routes.

5.7.2 Fish and Wildlife Resources Impact Analysis

Upon completion of Remedial Investigation activities and evaluation of data, Ambient will determine if a Fish and Wildlife Resources Impact Analysis (FWRIA) is needed. That determination will be based on NYSDEC DER-10 Section 3.10.1(b) which states that a RWRIA is not needed if the four criteria presented in Section 3.10.1(b) are met. The determination will be discussed with NYSDEC. If it is determined that a FWRIA is needed, a Part 1 resource characterization consisting of the five steps detailed in Section 3.10.1(c) will be conducted. If the results of the resource characterization indicate that further assessment is needed, an ecological impact assessment (Part 2) will be performed.

5.8 TASK 7 – REMEDIAL INVESTIGATION REPORT

Following completion of RI activities, a RI report will be prepared and submitted to NYSDEC for review and comment. This report will include the appropriate support documentation (tables, maps, data validation reports, figures, etc.), field data and laboratory analytical data. The report will present findings, conclusions, and recommendations for additional work and/or remediation, if necessary.

6.0 SCHEDULE

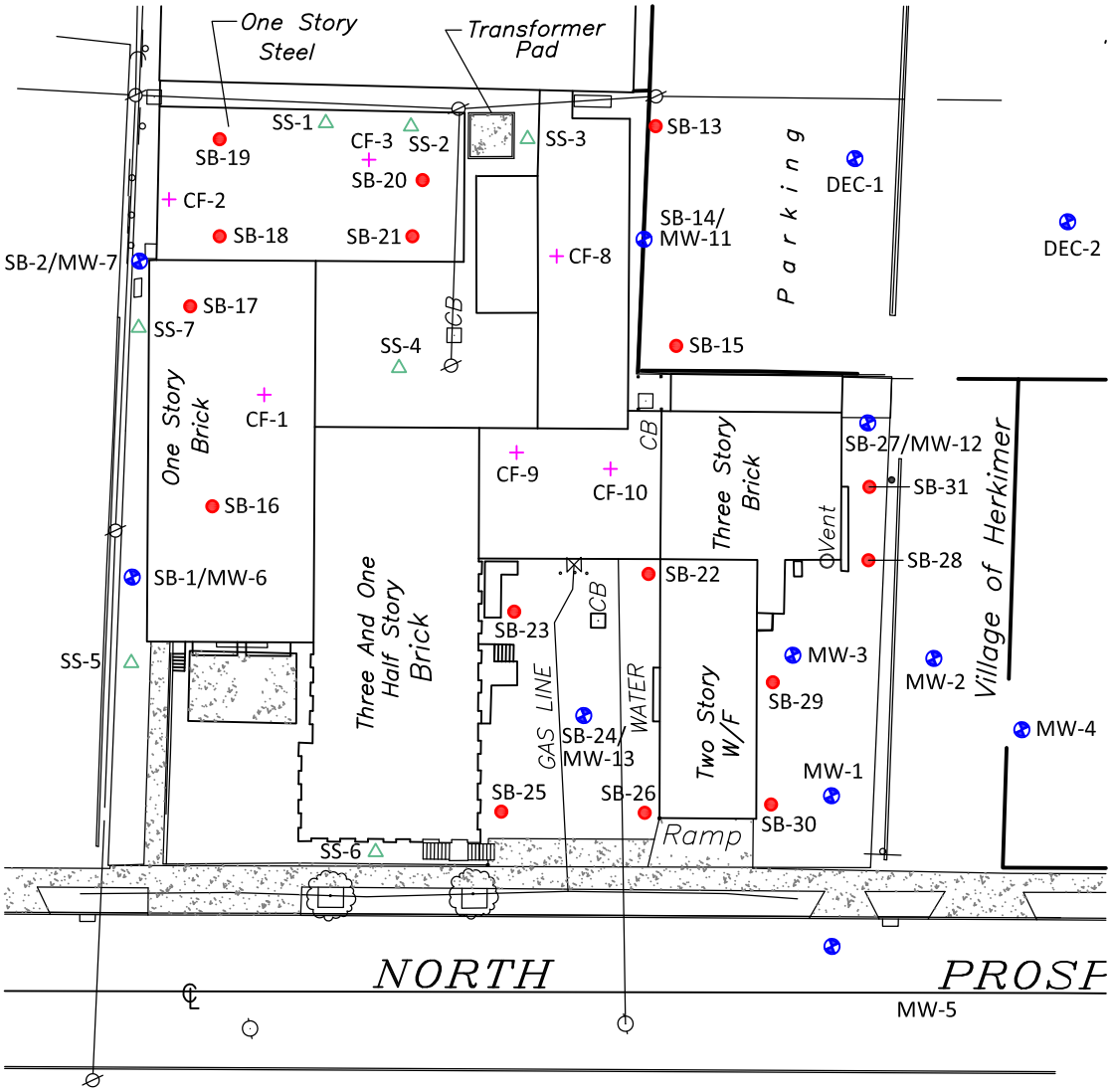
Summarized below is a tentative schedule for completion of project milestones, which is based in part on assumptions related to the timing of NYSDEC review and public comment.

BCP Remedial Investigation Work Plan Approved: 8/25/23
Begin Remedial Investigation (RI) field work: 9/5/23
Complete RI field work: 9/29/23
Receive final analytical reports and completed DUSR: 11/10/23
Submit RI Report ; 11/24/23
NYSDEC approves RI Report; 12/29/23

Note: This schedule is estimated, and NYSDEC review durations are assumed. Also, a change of use form will be submitted 60 days prior to any building demolition. This schedule does not consider IRMs; the scope and schedule for any proposed IRMs will be presented in an IRM work plan.

ATTACHMENT 1

SUPPORT DOCUMENTATION



LEGEND

- = SOIL BORING (SB)
- = CONCRETE FLOOR (CF)
- = SURFACE SOIL (SS)
- = MONITORING WELL (MW)

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DRAWING TITLE
SOUTHWEST SECTION

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Figure 1

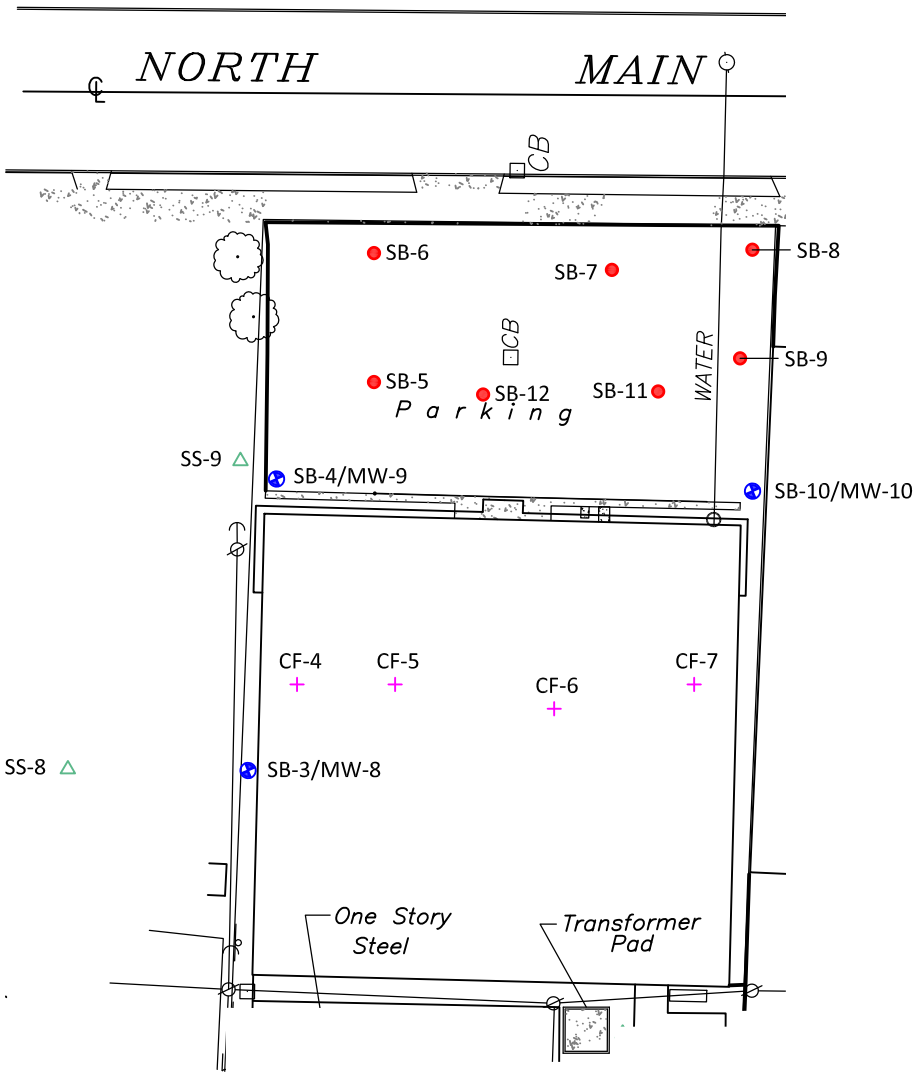

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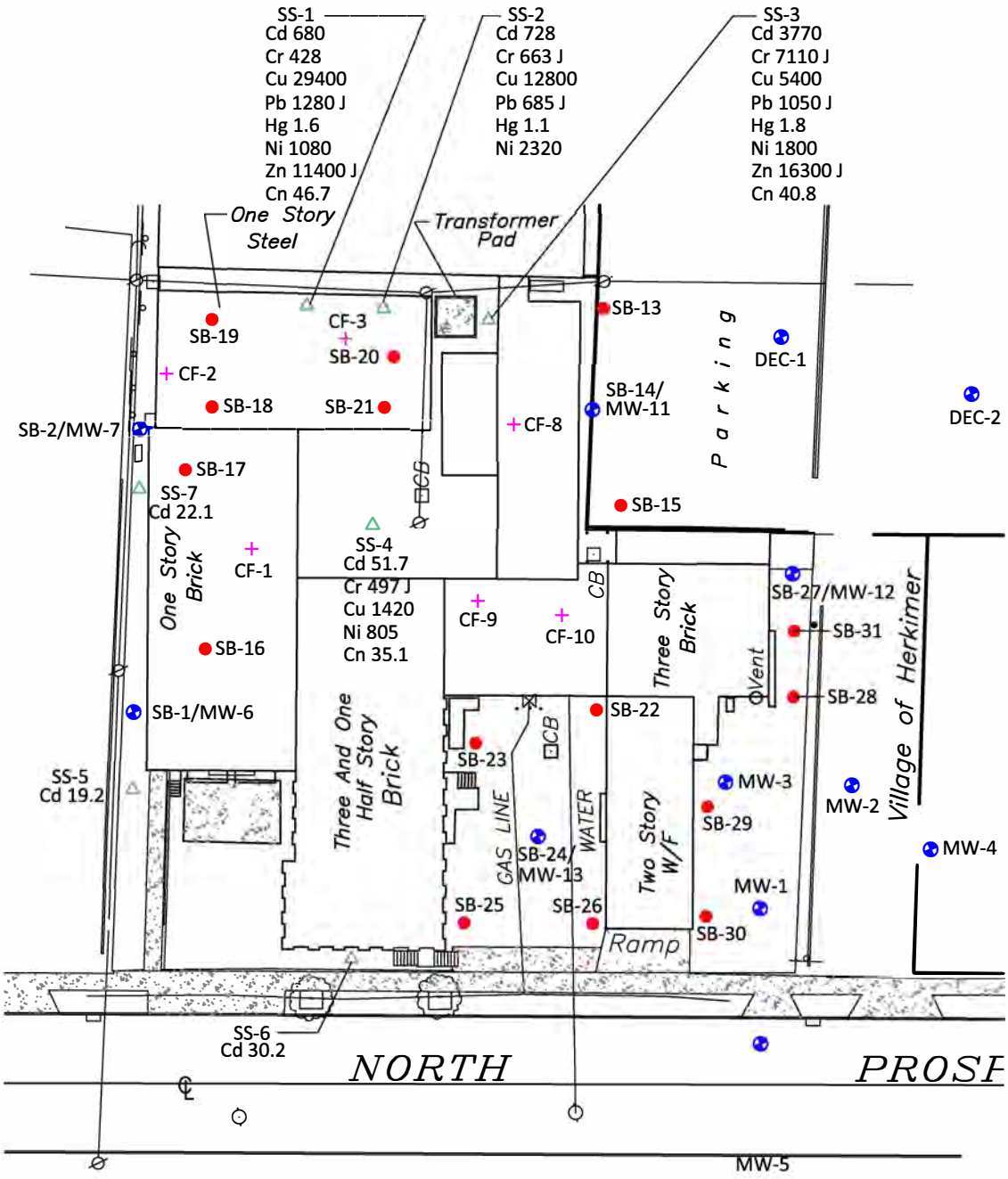
Figure 2



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NOTE: ALL CONCENTRATIONS IN PPM ONLY THOSE VALUES EXCEEDING RESTRICTED RESIDENTIAL SCOs ARE SHOWN

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SOUTHWEST SECTION SURFACE SOIL SAMPLE RESULTS NYSDEC 2010

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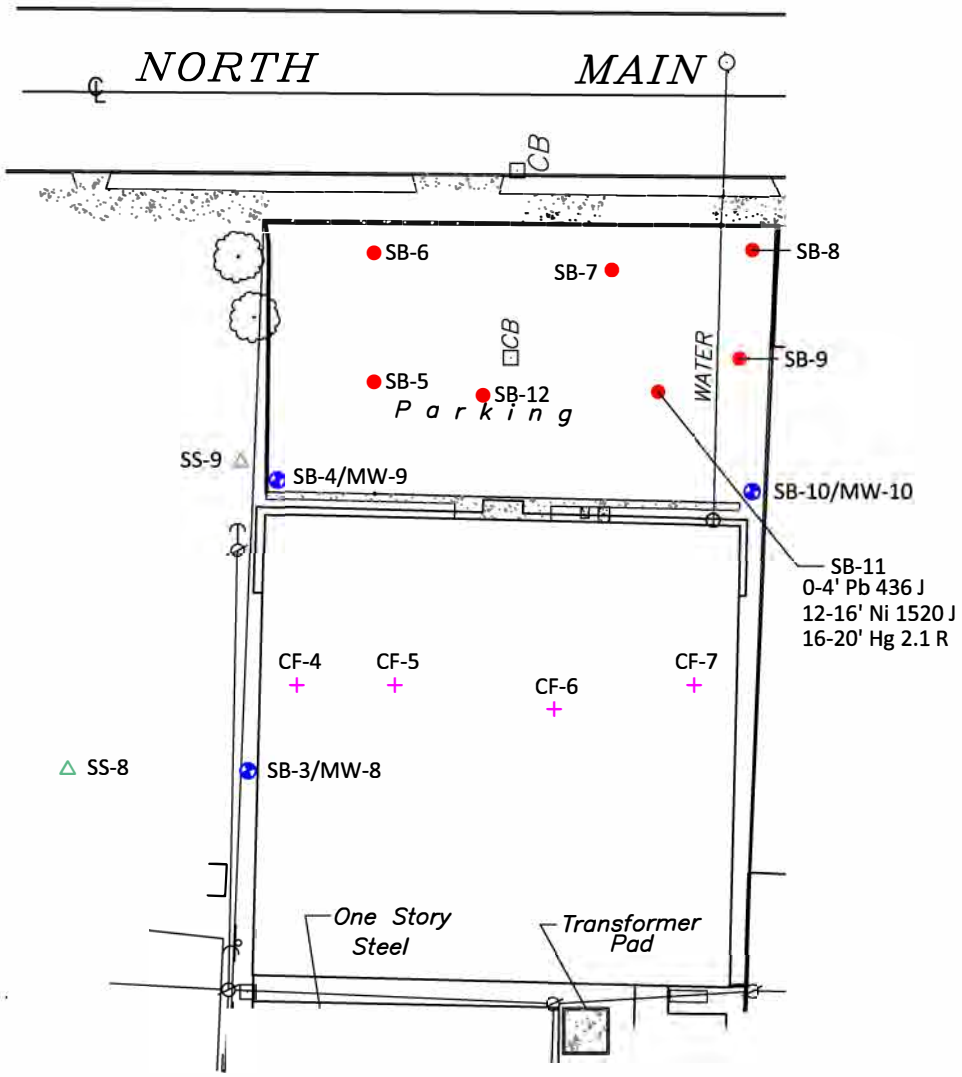
DWG. NO. Figure 3



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NORTHEAST SECTION SUBSURFACE SOIL SAMPLE RESULTS NYSDEC 2010

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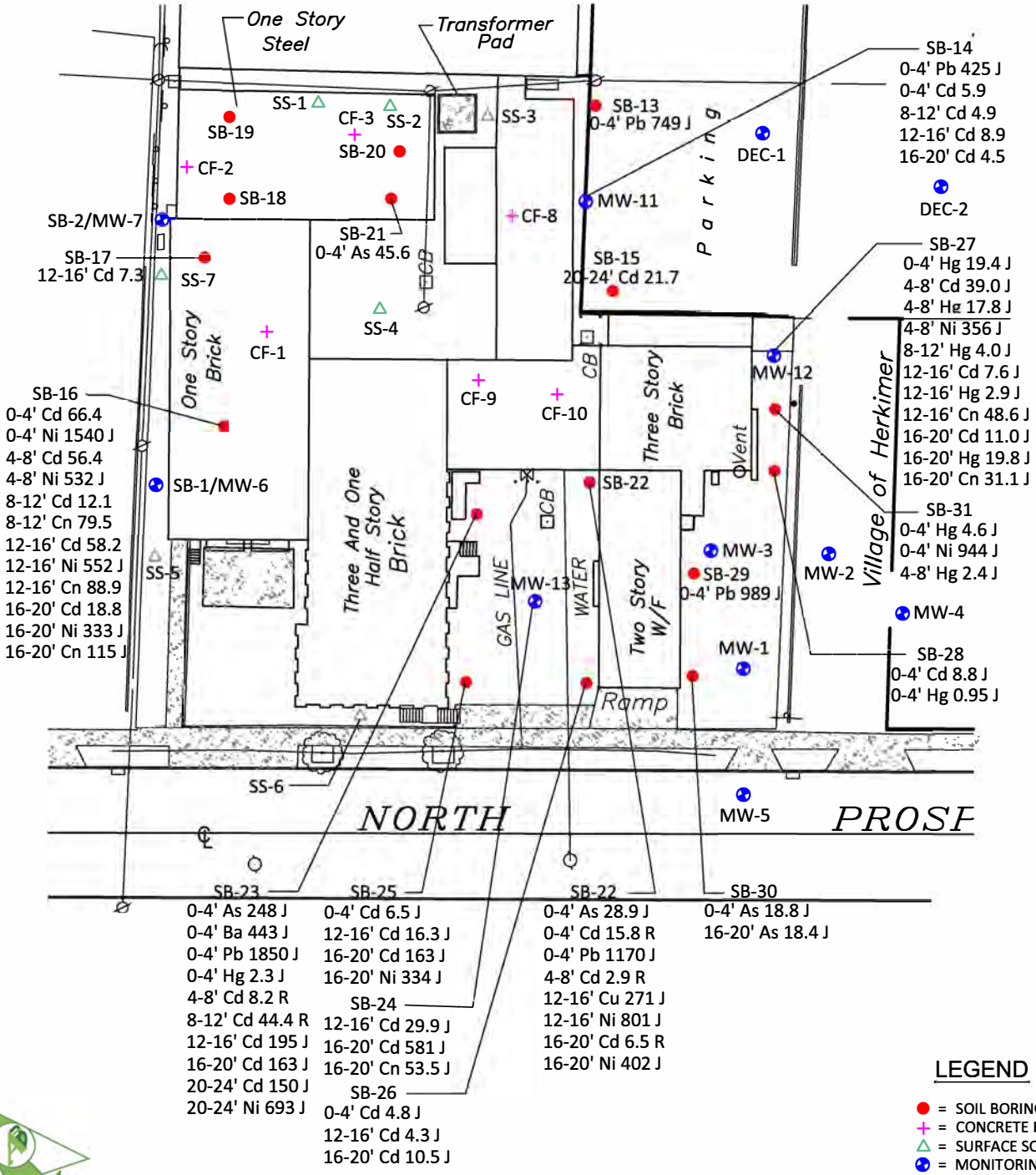
DWG. NO. Figure 4



LEGEND

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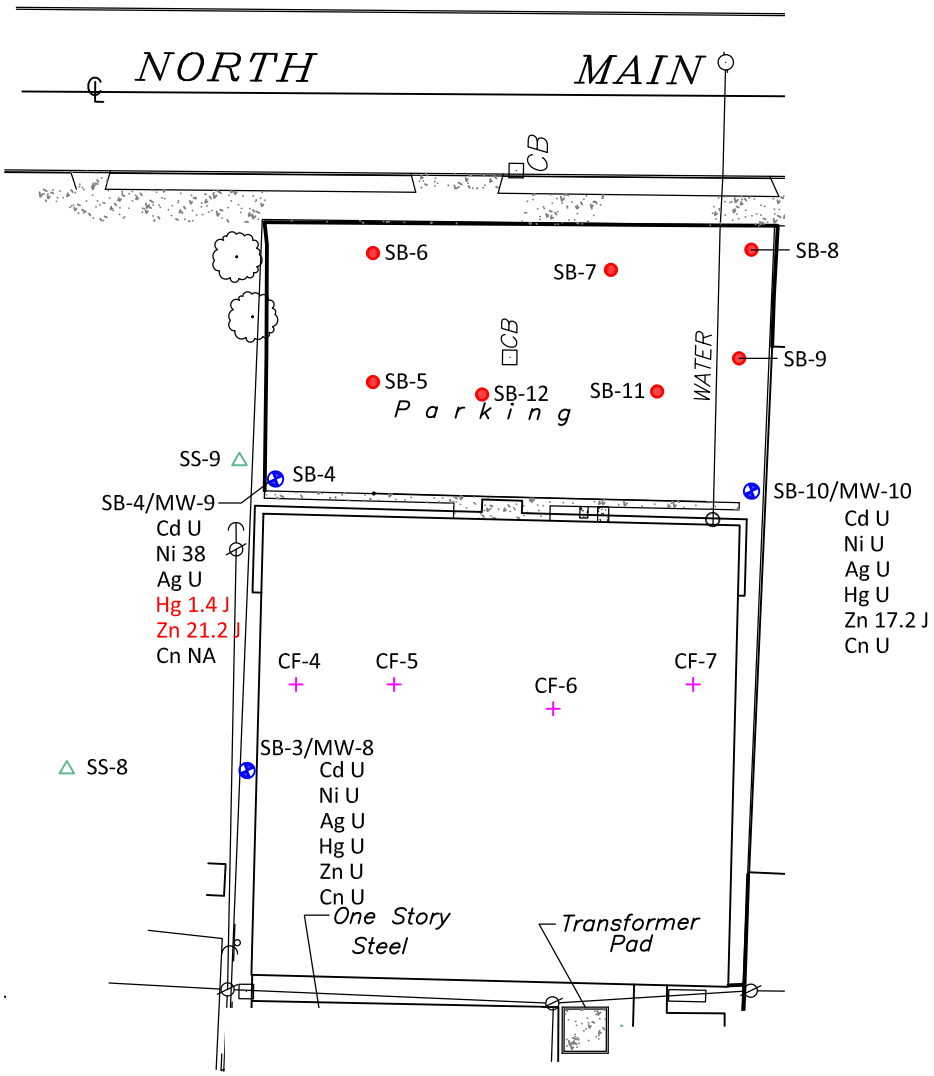
CHECKED BY	JB

DWG. NO. Figure 5



LEGEND

- ● = SOIL BORING (SB)
- + = CONCRETE FLOOR (CF)
- △ = SURFACE SOIL (SS)
- ● = MONITORING WELL (MW)

RED VALUES = EXCEEDS GWS

NOTE: ALL CONCENTRATIONS IN PPB
ONLY ANALYTES EXCEEDING GWS IN
AT LEAST ONE SAMPLE ARE SHOWN

REVISIONS		
DATE: 09/18/2021	SCALE: 1" = 50'	
PROJECT NO.	210818ENVA	
DRAWN BY	KJ	
CHECKED BY	JB	

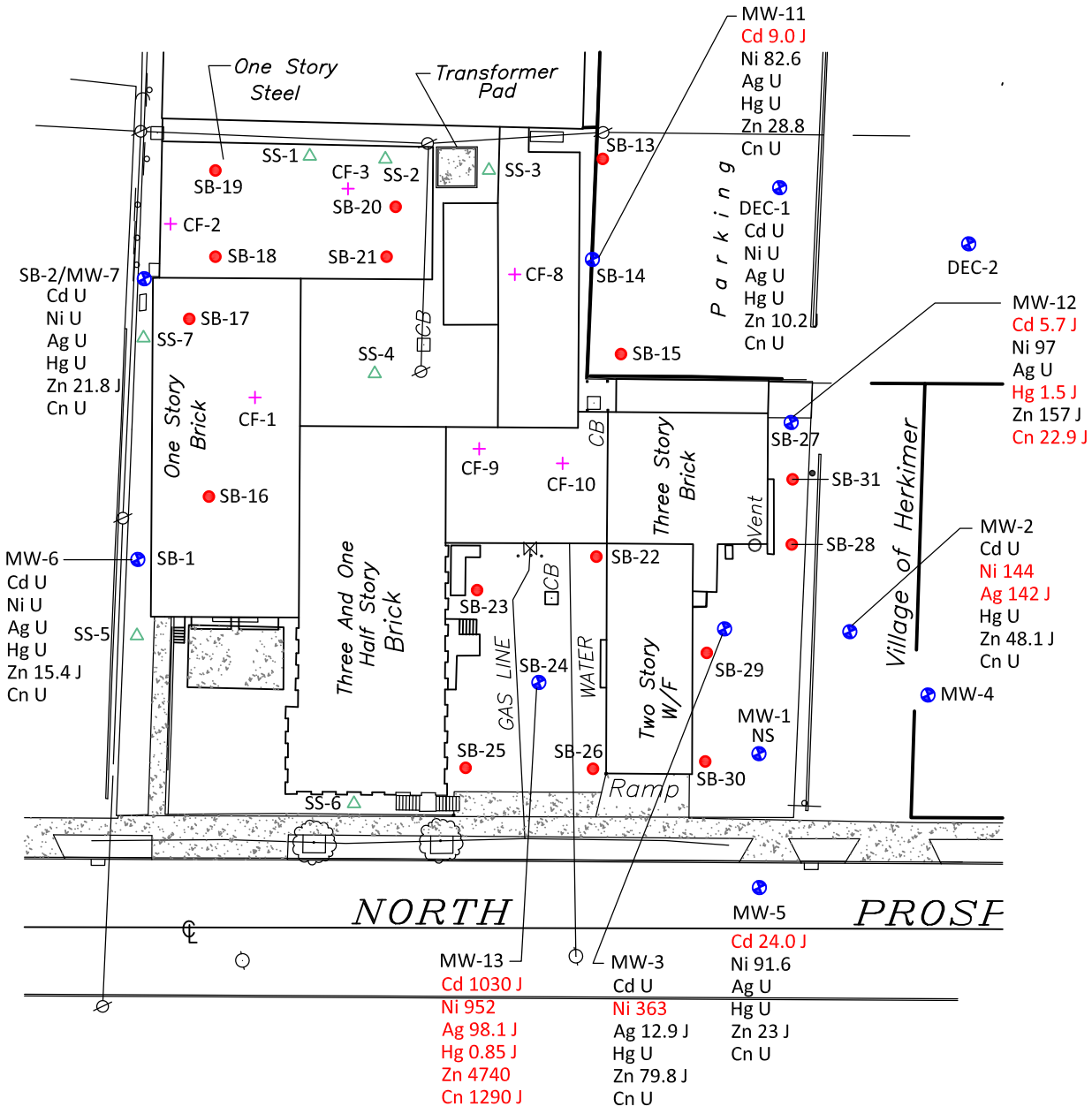
Ambient Environmental, Inc.
Building Science and EHS Solutions
828 Washington Avenue, Albany, NY 12203
PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

PROJECT LOCATION
220 NORTH PROSPECT STREET HERKIMER, NY
PREPARED FOR: HMQ 1890, LLC

DRAWING TITLE
NORTHEAST SECTION GROUNDWATER SAMPLE RESULTS NYSDEC 2010

DWG. NO.

Figure 6



LEGEND

- ● = SOIL BORING (SB)
- + = CONCRETE FLOOR (CF)
- △ = SURFACE SOIL (SS)
- ● = MONITORING WELL (MW)
- RED VALUES = EXCEEDS GWS

NOTE: ALL CONCENTRATIONS IN PPB
ONLY ANALYTES EXCEEDING GWS IN
AT LEAST ONE SAMPLE ARE SHOWN

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PROJECT LOCATION
220 NORTH PROSPECT STREET HERKIMER, NY
PREPARED FOR: HMQ 1890, LLC

DRAWING TITLE
SOUTHWEST SECTION GROUNDWATER SAMPLE RESULTS NYSDEC 2010

REVISIONS	
DATE: 09/18/2021	SCALE: 1" = 50'
PROJECT NO.	210818ENVA
DRAWN BY	KJ
CHECKED BY	JB

DWG. NO. Figure 7

Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	Field Duplicate
			0-2"	0-2"	0-2"	0-2"	0-2"	0-2"	0-2"	0-2"	0-2"	0-2"
Metals												
Arsenic	13	16	4.4	3	2.7 U	2.3 U	11.5	5.6	8.1	5.9	5.3	10.3
Barium	350	400	22.1 B	27.3 B	34.5 B	65.1	67.6	69.1	70	53.7	61	67
Cadmium	2.5	4.3	**680**	**728**	**3770**	**51.7**	**19.2**	**30.4**	**22.1**	2.2	1.9	**14.7**
Chromium	30	180	**428**	**663 J**	**7,110 J**	**497 J**	**84.7 J**	**65.6 J**	**36.3 J**	14.0 J	12.2 J	**58.2 J**
Copper	50	270	**29400**	**12800**	**5400**	**1420**	**106**	**201**	**87.5**	21.9	24.5	**74.8**
Lead	63	400	**1,280 J**	**685 J**	**1,050 J**	**316 J**	52.2 J	**314 J**	51.1 J	37.7 J	37.1 J	43.5 J
Mercury	0.18	0.81	**1.6**	**1.1**	**1.8**	**0.58**	0.058 U	**0.38**	0.11	0.058 U	**0.27**	0.076
Nickel	30	310	**1080**	**2320**	**11800**	**805**	**114**	**279**	**109**	21.8	23.9	**69.4**
Selenium	3.9	180	**4.8 J**	1.2 U	1.4 U	1.2 U	1.2 U	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U
Zinc	109	10000	**11,400 J**	**4,600 J**	**16,300 J**	**862 J**	**132 J**	**399 J**	**127**	73	70	98.2
Cyanide	27	27	**46.7**	26.9	**40.8**	**35.1**	1.7	1.3 U	1.2 U	1.2 U	1.2U	4.2

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID														
			SB-1A	SB-1B	SB-1C	SB-1D	SB-1E	SB-2A	SB-2B	SB-2C	SB-2D	SB-2E	SB-2F	SB-3A	SB-3B	SB-3C	SB-3D	SB-3E
			0-4'	4-8'	8-12'	12-16'	16-20'	0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'	12-16'	16-20'
Metals																		
Arsenic	13	16	4.2 J	2.2 J	2.2 UJ	2.2 UJ	2.2 UJ	5.2 J	6.8 J	2.1 UJ	2.1 UJ	2.6 J	2.3 UJ	5.4 J	5.9 J	2.2 UJ	2.2 UJ	3.4
Barium	350	400	85.3 J	29.4 BJ	37.2 BJ	25.0 BJ	27.1 BJ	48.5 J	37.0 BJ	29.2 BJ	24.6 BJ	30.8 BJ	29.3 BJ	107 J	55.6 J	19.6 BJ	33.2 BJ	18.5 B
Cadmium	2.5	4.3	1.7 J	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	2.0 J	1.7 J	1.0 UJ	1.0 UJ	1.1 UJ	1.1 UJ	1.4 J	1.3 J	1.1 UJ	1.1 UJ	1.1 U
Chromium	30	180	8.9 J	4.0 J	7.5 J	5.5 J	6.0 J	9.7 J	9.3 J	5.0 J	6.4 J	7.3 J	7.6 J	10.2 J	9.4 J	3.9 J	8.7 J	6
Copper	50	270	27.9 J	9.6 J	17.8 J	10.8 J	10.8 J	12.6 J	22.1 J	22.3 J	10.5 J	15.8 J	13.0 J	18.6 J	13.0 J	8.9 J	15.2 J	5.6
Lead	63	400	**71.4 J**	3.9 J	15.4 J	1.6 J	4.5 J	65.8 J	13.8 J	0.63 UJ	1.7 J	6.0 J	3.8 J	45.7 J	41.9 J	3.9 J	1.0 J	4
Mercury	0.18	0.81	0.057 UJ	0.054 UJ	0.16 J	0.055 UJ	0.055 UJ	0.081 J	0.059 UJ	0.052 UJ	0.052 UJ	0.054 UJ	0.057 UJ	**0.20 J**	0.11 J	0.054 UJ	0.055 UJ	0.054 U
Nickel	30	310	23.8 J	7.4 BJ	12.8 J	7.7 BJ	9.3 J	24.8 J	17.6 J	9.7 J	15.9 J	13.7 J	11.1 J	25.9 J	15.2 J	6.9 BJ	12.3 J	6.4 U
Selenium	3.9	180	1.1 UJ	**4.2 J**	1.4 J	2.9 J	1.5 J	1.1 UJ	1.2 UJ	3.0 J	**4.3 J**	2.2 J	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ
Zinc	109	10000	71.7 J	26.2 J	37.5 J	28.0 J	30.0 J	74.7 J	63.7 J	17.5 J	25.4 J	31.5 J	27.6 J	66.7 J	43.0 J	24.5 J	33.0 J	36.3 J
Cyanide	27	27	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.0 UJ	1.0 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID														
			Field Duplicate 1	SB-3F	SB-4A	SB-4B	SB-4C	SB-4D	SB-4E	SB-4F	SB-5A	SB-5B	SB-5C	SB-5D	SB-5E	SB-6A	SB-6B	SB-6C
				20-24'	0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'	12-16'	16-20'	0-4'	4-8'	8-12'
Metals																		
Arsenic	13	16	4.3	2.2 U	4.4	5.4	4.2	5.1	3.2	7.2	4.5	**13.1**	3.9	6.7	8.2	2.3 U	2.1 UJ	2.1 UJ
Barium	350	400	23.0 B	26.6 B	35.7 B	41.7	39.5 B	48.7	142.0	224.0	51.3	17.1 B	21.4 B	67.5	131.0	64.3	44.6 J	33.5 BJ
Cadmium	2.5	4.3	5.7	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.3 U	1.4 U	1.1 U	1.1 U	1.0 U	1.1 U	1.4 U	1.1 U	1.1 UJ	1.1 UJ
Chromium	30	180	5.3	6.0	13.1	19.4	9.7	12.4	23.8	**40.3**	14.5	6.1	4.9	13.8	21.1	29.2	5.1 J	4.7 J
Copper	50	270	11.7	9.2	10.5	17.8	16.2	23.2	21.9	37.8	14.8	7.6	8.5	24.4	21.7	11.0	9.6 J	8.8 J
Lead	63	400	2.9	2.6	13.2	9.1	29.1	7.5	8.1	14.1	9.7	5.7	1.6	8.4	8.5	20.5	0.64 UJ	0.67 J
Mercury	0.18	0.81	**0.25**	0.056 U	0.067	0.11	0.054 U	0.056 U	0.066 U	0.068 U	0.11	0.054 UJ	0.052 U	0.055 U	0.068 U	0.12	0.054 UJ	0.053 UJ
Nickel	30	310	9.7	8.7	12.3	18.1	16.5	19.2	28.0	**45.5**	17.2	6.9 B	7.2 B	22.1	26.2	16.6	6.4 UJ	6.3 UJ
Selenium	3.9	180	1.2 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.3 U	1.4 U	1.1 U	1.1 U	1.0 U	1.1 U	1.4 U	1.1 U	1.1 UJ	1.1 UJ
Zinc	109	10000	68.1 J	29.2 J	54.8 J	74.4 J	62.0 J	56.8 J	80.7 J	**127 J**	50.1 J	11.5 J	28.5 J	58.4 J	77.2 J	53.5 J	21.3 J	18.6 J
Cyanide	27	27	1.2 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.3 U	1.4 U	1.1 U	1.1 U	1.0 U	1.1 U	1.4 U	1.1 U	1.1 UJ	1.1 UJ

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

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NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID														
			SB-6D	SB-6E	SB-7A	SB-7B	SB-7C	SB-7D	SB-7E	SB-8A	SB-8B	SB-8C	SB-8D	SB-8E	Field Duplicate 2	SB-9A	SB-9B	SB-9C
			12-16'	16-20'	0-4'	4-8'	8-12'	12-16'	16-20'	0-4'	4-8'	8-12'	12-16'	16-20'		0-4'	4-8'	8-12'
Metals																		
Arsenic	13	16	5.2 J	3.7 J	5.4 J	2.2 J	2.5 J	4.2 J	4.5 J	4.2 J	3.2 J	2.2 UJ	3.7 UJ	4.0 J	3.5 J	8.3 J	5.6 J	2.2 UJ
Barium	350	400	97.7 J	135 J	56.3 J	30.7 BJ	26.5 BJ	126 J	132 J	341 J	209 J	29.8 J	147 J	171 J	115 J	124 J	95.9 J	25.0 BJ
Cadmium	2.5	4.3	1.4 UJ	1.3 UJ	1.1 UJ	1.0 UJ	1.0 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.2 UJ	1.1 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.1 U	1.2 U	1.1 U
Chromium	30	180	18.3 J	22.1 J	9.4 J	9.0 J	9.2 J	21.3 J	21.8 J	8.5 J	13.4 J	6.5 J	23.3 J	26.6 J	20.6 J	12.7 J	12.5 J	6.9 J
Copper	50	270	28.1 J	21.5 J	12.8 J	9.3 J	10.2 J	20.7 J	22.7 J	31.0 J	25.7 J	11.2 J	20.4 J	23.3 J	19.7 J	20.7 J	19.0 J	11.7 J
Lead	63	400	9.9 J	7.7 J	70.3 J	33.2 J	13.1 J	7.2 J	9.0 J	**99.1 J**	**117 J**	5.4 J	6.7 J	7.6 J	6.8 J	**93.2 J**	27.3 J	2.8 J
Mercury	0.18	0.81	0.069 UJ	0.067 UJ	0.059 J	0.052 UJ	0.052 UJ	0.066 UJ	0.068 UJ	**0.42 J**	0.15 J	0.055 UJ	0.067 UJ	0.070 UJ	0.081 J	0.11 R	0.067 R	0.054 R
Nickel	30	310	26.7 J	27.6 J	10.3 J	7.3 BJ	7.2 BJ	27.2 J	27.2 J	12.9 J	14.7 J	9.3 J	25.9 J	29.1 J	26.2 J	15.6 J	16.4 J	9.4 J
Selenium	3.9	180	1.4 UJ	1.3 UJ	1.1 UJ	1.0 UJ	1.0 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.2 UJ	1.1 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.1 U	1.2 U	1.1 U
Zinc	109	10000	68.2 J	75.4 J	47.5 J	27.2 J	29.2 J	73.4 J	77.2 J	75.2 J	72.1 J	24.5 J	72.7 J	88.9 J	71.3 J	69.9 J	62.7 J	28.3 J
Cyanide	27	27	1.4 UJ	1.3 UJ	0.011 UJ	1.0 UJ	1.0 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.2 UJ	1.1 UJ	1.3 UJ	1.4 UJ	1.3 UJ	1.1 U	1.2 U	1.1 U

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

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Only those metals detected in at least one sample are presented on this table.

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NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID														
			SB-9D	SB9E	SB-10A	SB-10B	SB-10C	SB-10D	SB-10E	SB-10F	SB-11A	SB-11B	SB-11C	SB-11D	SB-11E	Dup. 3	Dup. 4	SB-12A
			0-4'	4-8'	0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'	12-16'	16-20'			0-4'
Metals																		
Arsenic	13	16	2.1 UJ	5.6 J	3.2 J	4.6 J	2.2 UJ	6.1 J	5.4 J	6.8 J	12.3 J	4.2 J	2.5 J	5.5 J	3.2 J	10.9	5.2	4.8 J
Barium	350	400	29.0 BJ	134 J	85.4 J	29.8 BJ	45.7 J	80.7 J	148 J	189 J	86.5 J	47.1 J	29.6 BJ	81.5 J	125 J	100	42.3	68.6 J
Cadmium	2.5	4.3	1.0 U	1.3 U	1.2 U	1.1 U	1.8	1.1 U	1.3 U	1.6	1.1 U	1.2 U	1.1 U	1.1 U	1.3 U	1.1 U	1.1 U	1.1 U
Chromium	30	180	5.1 J	23.5 J	9.8 J	9.5 J	12.7 J	17.0 J	24.0 J	**37.1 J**	13.2 J	8.9 J	6.0 J	16.5 J	21.8 J	13.6	14.5	10.2 J
Copper	50	270	5.8 J	22.5 J	9.8 J	17.1 J	19.2 J	21.9 J	22.5 J	36.6 J	28.5 J	14.1 J	13.7 J	25.9 J	22.5 J	25.9	19.6	18.4 J
Lead	63	400	4.2 J	7.6 J	45.8J	5.1 J	4.6 J	8.2 J	8.1 J	15.1 J	**436 J**	5.5 J	2.3 J	9.0 J	7.7 J	217	14.7	88.0J
Mercury	0.18	0.81	0.052 R	0.064 R	**0.22 R**	0.055 R	0.054 R	0.057 R	0.085 R	0.080 R	**0.33 R**	0.11 R	0.055 R	0.056 R	**2.1 R**	0.13	0.15	**0.19 R**
Nickel	30	310	6.3 UJ	27.4 J	8.7 J	14.6 J	17.7 J	22.9 J	28.9J	**43.5J**	18.3 J	13.8 J	10.7 J	**1,520J**	27.1 J	17.6	17.9	14.2 J
Selenium	3.9	180	1.0 U	1.3 U	1.2 U	1.1 U	1.1 U	1.1 U	1.3 U	1.3 U	1.1 U	1.2 U	1.1 U	1.1 U	1.3 U	1.1 U	1.1 U	1.1 U
Zinc	109	10000	21.9 J	79.5 J	46.6 J	52.1 J	**373 J**	61.5 J	79.7 J	**117 J**	**122 J**	42.1 J	29.3 J	68.5 J	75.6 J	**116**	53.5	79.1 J
Cyanide	27	27	1.0 U	1.3 U	1.2 U	1.1 U	1.1 U	1.1 U	1.3 U	1.3 U	1.1 U	1.2 U	1.1 U	1.1 U	1.3 U	1.1 U	1.1 U	1.1 U

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

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BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Dup. = Field Duplicate

Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID															
			SB-15A	SB-15B	SB-15C	SB-15D	SB-15E	SB-15F	SB-16A	SB-16B	SB-16C	SB-16D	SB-16E	SB-16F	SB-17A	SB-17B	SB-17C	SB-17D
			0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'	12-16'
Metals																		
Arsenic	13	16	2.3	2.3 U	2.3 U	2.1 U	5.8	2.3	2.9	2.2 U	2.2 U	2.2 U	2.2 UJ	2.3 UJ	3.3 J	2.3 UJ	2.2 UJ	2.1 UJ
Barium	350	400	11.4 R	11.3 R	11.4 R	10.5 R	113	14.8 B	11.1 U	10.9 U	10.8 U	25.2 B	21.2 B	22.5 B	50.4	18.5 B	28.3 B	20.7 B
Cadmium	2.5	4.3	1.7	1.5	1.1 U	1.0 U	1.2 U	**21.7**	**66.4**	**56.4**	**12.1**	**58.2**	**18.8**	**3.2**	1.1 U	1.2 U	1.1 U	**7.3**
Chromium	30	180	7.3	8.4	7.4	4.5	9.1	16.9	**47.3**	**89**	19	**91.7**	7.1	5.9	11.1	5.3	7.2	6
Copper	50	270	18.1 J	14.6 J	15.1 J	12.6 J	**68.2 J**	**147 J**	**110 J**	**257 J**	**56.9J**	**256J**	**53.5J**	26.7 J	33.8	5.4	23.3	26.6 J
Lead	63	400	2.3 J	2.6 J	3.3 J	3.0 J	**196 J**	26.7 J	21.7 J	31.2 J	6.8 J	31.2 J	0.68 UJ	2.2 J	10.1 J	0.95 J	2.3 J	1.2 J
Mercury	0.18	0.81	**0.41 J**	0.13 J	0.091 R	0.095 R	0.10 R	0.10 R	**0.52 J**	0.11 J	**0.21 J**	0.14 J	0.14 J	R	0.11 J	0.15 J	0.12 J	0.096 R
Nickel	30	310	15.1 J	13.4 J	**38.2 J**	20.1 J	**33.9 J**	**309J**	**1,540 J**	**532 J**	**116 J**	**552 J**	**333J**	**166 J**	22.9 J	6.9 UJ	14.2 J	**73.4J**
Selenium	3.9	180	1.1 UJ	1.1 UJ	1.1 UJ	1.0 UJ	1.2 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	R	1.1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.1 UJ
Zinc	109	10000	24.7 J	23.9 J	25.2 J	16.6 J	136 J	131 J	**405J**	**255J**	67.0 J	**260J**	**136J**	60.3 J	63.0 J	18.2 J	28.9 J	44.4 J
Cyanide	27	27	1.1 U	1.1 U	1.1 U	1.0 U	1.2 U	1.1 U	1.1 U	9.6	**79.5**	**88.9**	**115 J**	1.2 UJ	1.1 UJ	1.2 UJ	14.2 J	1.1 UJ

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID															
			SB-17E	SB-18A	SB-18B	SB-18C	SB-18D	SB-18E	SB-19A	SB-19B	SB-19C	SB-19D	SB-19E	SB-20A	SB-21A	SB-21B	SB-21C	SB-21D
			16-20'	0-4'	4-8'	8-12'	12-16'	16-20'	0-4'	4-8'	8-12'	12-16'	16-20'	0-4'	0-4'	4-8'	8-12'	12-16'
Metals																		
Arsenic	13	16	2.5 J	4.2 J	2.1 UJ	3.6 J	2.1 U	2.2 U	2.5	2.1 U	2.1 U	2.1 U	2.3 U	8.4	**45.6**	2.1 U	2.1 UJ	2.1 UJ
Barium	350	400	23.2 B	28.1 B	10.6 U	109	17.4 B	32.2 B	43.6	32.3 B	21.0 B	27.3 B	34.5 B	31.3 B	98.6	16.1 BJ	18.7 BJ	16.1 BJ
Cadmium	2.5	4.3	1.1 U	1.1 U	1.1 U	1.1 U	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U	1.1 U	1.2 U	1.1 U	1.6	1.0 U	1.1 R	1.0 R
Chromium	30	180	3.5	6	3.3	3.2	3.8	11.2	9.3	8.4	5.5	5.4	6.4	7.4	5.7	3.2	6.3 R	3.9 R
Copper	50	270	9.2	19.3	2.4 BJ	7.9	7.4	10.7 J	9.7	27.8	14.2 J	10.7 J	16.1 J	18.2	33.9	7.5 J	19.7 J	6.4 J
Lead	63	400	1.7 J	9.5 J	0.63 UJ	4.0 J	2.6	2	27.7	8.4	2.3	2	7.1	15.1	227	1.3	0.98 J	1.5 J
Mercury	0.18	0.81	0.095 R	0.12 J	0.098 R	0.074 R	0.092 R	0.085 R	0.15 J	0.11 J	0.079 R	0.091 R	0.11 R	0.084 R	0.19 J	0.14 J	0.078 J	0.052 UJ
Nickel	30	310	10.8 J	12.4 J	6.3 UJ	6.4 UJ	6.3 UJ	7.8 BJ	10.4 J	11.4 J	9.6 J	9.2 J	13.3 J	12.9 J	**35.1 J**	8.3 J	14.0 J	6.2 UJ
Selenium	3.9	180	1.1 UJ	1.1 UJ	1.1 UJ	1.1 R	1.0 R	1.1 R	1.1 R	1.0 R	1.1 R	1.1 R	1.2 R	1.1 R	1.2 R	1.0 R	1.1 U	1.0 U
Zinc	109	10000	21.8 J	51.8 J	10.7 J	12.1 J	21.0 J	30.3 J	38.0 J	34.2 J	31.0 J	29.2 J	40.6J	38.1 J	39.6 J	23.4 J	34.8 J	19.0 J
Cyanide	27	27	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.0 UJ	1.1 UJ	1.1 UJ	1.0 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.2 UJ	1.0 UJ	1.1 U	1.0 U

Notes:

All soil results reported in mg/kg - parts per million (ppm).

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Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID														
			SB-21E	SB-22A	SB-22B	SB-22C	SB-22D	SB-22E	SB-22F	SB-23A	SB-23B	SB-23C	SB-23D	SB-23E	SB-23F	SB-24A	SB-24B	SB-24C
			16-20'	0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'
Metals																		
Arsenic	13	16	2.2 UJ	**28.9 J**	2.2 UJ	2.2 UJ	4.0 J	2.8 J	2.2 UJ	**248J**	**15.5 J**	7.0 J	2.1 U	2.3 U	2.2 U	8.2 J	2.2 U	2.1 U
Barium	350	400	31.5 BJ	102 J	22.2 BJ	**390J**	47.4 J	24.1 BJ	28.7 BJ	**443J**	24.4 BJ	60.7 J	14.8 BJ	11.5 U	17.2 B	128 J	19.6 BJ	17.6 BJ
Cadmium	2.5	4.3	1.1 R	**15.8 R**	**22.9 R**	1.1 R	**5.1 R**	**6.5 R**	1.1 R	**3.5 R**	**8.2 R**	**44.4R**	**195 J**	**16.3 J**	**150 J**	1.2 J	1.1 U	1.1 U
Chromium	30	180	7.1 R	12.4 R	**70.2 R**	4.5 R	**55.1 R**	10.3 R	5.0 R	5.5 R	27.9 R	**50.7 R**	10.4 J	**53.1 J**	**59.1 J**	7.0 J	4.2 J	3.2 J
Copper	50	270	15.4 J	**106 J**	43.6 J	20.3 J	**271 J**	**158 J**	18.5 J	**140 J**	**91.2 J**	**105 J**	**61.6 J**	**113 J**	**88.3 J**	**126 J**	7.3 J	6.0 J
Lead	63	400	4.9 J	**1,170 J**	31.8 J	0.64 UJ	3.1 J	1.7 J	0.68 UJ	**1,850 J**	27.7 J	34.5J	4.4 J	**73.7 J**	3.8 J	**91.8 J**	2.6 J	0.64 UJ
Mercury	0.18	0.81	0.057 J	**0.53 J**	0.068 J	0.054 UJ	0.054 UJ	0.054 UJ	0.113U	**2.3 J**	0.057 J	0.055 UJ	0.053 UJ	0.057 UJ	0.14 J	0.15 J	0.054 UJ	0.053 UJ
Nickel	30	310	**39.4J**	**91.0 J**	**129J**	**112 J**	**801 J**	**402J**	**92.3 J**	7.2 UJ	**38.9J**	**113 J**	**272J**	**284J**	**693J**	**78.5J**	6.5 UJ	6.4 UJ
Selenium	3.9	180	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	**7.5 J**	1.1 U	1.1 U	1.1 U	1.2 UJ	1.1 UJ	1.2 UJ	1.1 UJ	1.1 UJ
Zinc	109	10000	50.6 J	**3,710 J**	**640J**	43.6J	66.1 J	44.8 J	30.3 J	**117 J**	**115 J**	**1,710 J**	**306J**	**308 J**	**434J**	98.8 J	19.4 J	12.2 J
Cyanide	27	27	1.1 U	2.0 J	19.3 J	1.1 U	4.3 J	6.1 J	1.1 U	1.2 U	1.2 J	6.1 J	1.1 U	3.2 J	20.4 J	1.2 U	1.1 U	1.1 U

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

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Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID														
			SB-24D	SB-24E	SB-25A	SB-25B	SB-25C	SB-25D	SB-25E	SB-26A	SB-26B	SB-26C	SB-26D	SB-26E	SB-27A	SB-27B	SB-27C	SB-27D
			12-16'	16-20'	0-4'	4-8'	8-12'	12-16'	16-20'	0-4'	4-8'	8-12'	12-16'	16-20'	0-4'	4-8'	8-12'	12-16'
Metals																		
Arsenic	13	16	2.1 U	2.2 U	2.2 U	5.6 J	2.2 U	2.1 U	2.3 U	**13.9 J**	2.2 U	2.1 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 UJ	2.2 UJ
Barium	350	400	23.2 BJ	17.3 BJ	46.7 J	17.2 BJ	20.8 BJ	18.9 BJ	24.6 BJ	164 J	23.0 BJ	17.8 BJ	66.6 J	18.3 BJ	24.2 BJ	29.7 BJ ,	27.5 BJ,	27.3 BJ
Cadmium	2.5	4.3	**29.9J**	**581 J**	**6.5 J**	1.1 U	1.1 U	**16.3 J**	**163 J**	**4.8 J**	1.1 U	1.1 U	**4.3 J**	**10.5J**	**3.0J**	**39.0J**	1.2 J	**7.6J**
Chromium	30	180	18.7 J	17.6 J	10.5 J	6.2 J	4.3 J	8.9 J	**36.8 J**	9.6 J	7.5 J	4.9 J	6.7 J	**31.1 J**	22.9 J	13.6 J	12.6 J	17.2 J
Copper	50	270	**55.6J**	21.2 J	**51.7 J**	9.5 J	8.2 J	5.5 J	**66.0J**	**56.9 J**	14.3 J	9.9 J	37.6 J	**99.2 J**	**69.2 J**	12.0 J	36.6 J	**94.3J**
Lead	63	400	10.0 J	2.4 J	**159 J**	6.6 J	1.5 J	1.4 R	2.1 R	**97.8 J**	2.9 R	3.6 R	3.2 R	14.8 J	6.7 R	4.2 R	3.3 J	7.5 J
Mercury	0.18	0.81	0.053 UJ	0.055 UJ	0.14 J	0.056 UJ	0.056 UJ	0.052 UJ	0.057 UJ	0.13 J	0.054 UJ	0.053 UJ	0.055 UJ	0.056 UJ	**19.4J**	**17.8J**	**4.0 J**	**2.9J**
Nickel	30	310	**54.1 J**	**183 J**	**94.7 J**	6.9 BJ	6.7 UJ	**172 J**	**334J**	**83.8 J**	9.2 J	7.3 BJ	**85.9J**	**220 J**	**187 J**	**356J**	**117 J**	**214J**
Selenium	3.9	180	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.0 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ
Zinc	109	10000	**626J**	**361 J**	79.0 J	12.3 J	18.1 J	**356J**	**498J**	94.0 J	24.3 J	31.8 J	227 J	**5,190 J**	**4,960J**	**416 J**	**2,810 J**	**628J**
Cyanide	27	27	1.1 U	**53.5J**	1.1 U	1.1 U	1.1 U	1.0 U	1.1 U	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	12.9 J	11.1 J	1.3 J	4.1 J	**48.6J**

Notes:

All soil results reported in mg/kg - parts per million (ppm).

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Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID															
			SB-27E	SB-28A	SB-28B	SB-28C	SB-28D	SB-28E	SB-28F	SB-29A	SB-29B	SB-29C	SB-29D	SB-29E	SB-29F	SB-30A	SB-30B	SB-30C
			16-20'	0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'	12-16'	16-20'	20-24'	0-4'	4-8'	8-12'
Metals																		
Arsenic	13	16	2.2 UJ	8.1 J	2.1 UJ	2.1 UJ	2.1 UJ	2.2 UJ	2.3 UJ	32.5 J	2.3 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	**18.8 J**	2.5 J	2.1 UJ
Barium	350	400	31.9 BJ	72.4J	20.6 BJ	19.9 BJ	20.8 BJ	26.1 BJ	16.0 BJ	104 J	25.7 BJ	22.2 BJ	25.7 BJ	44.4 J	19.1 BJ	213 J	70.0 J	22.5 BJ
Cadmium	2.5	4.3	**11.0 J**	**8.8 J**	1.1 UJ	1.0 UJ	1.0 UJ	1.1 UJ	1.1 UJ	3.2 J	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.9 J	1.2 UJ	1.1 UJ
Chromium	30	180	**33.9J**	**58.0 J**	4.2 J	5.2 J	5.0 J	4.8 J	3.9 J	**75.2 J**	8.6 J	29.4 J	8.2 J	6.9 J	6.8 J	18.0 J	8.4 J	3.9 J
Copper	50	270	**159 J**	**75.8 J**	9.7 J	4.5 BJ	6.8 J	13.9 J	6.9 J	**242 J**	45.0 J	33.8 J	11.6 J	22.9 J	20.8 J	70.0 J	15.9 J	6.0 J
Lead	63	400	12.3 J	**301 J**	4.5J	0.63 UJ	2.7 J	4.0J	1.8 J	**989J**	12.8 J	55.8 J	27.8 J	4.0 J	5.3 J	**111 J**	29.5 J	1.3 J
Mercury	0.18	0.81	**19.8 J**	**0.95 J**	0.053 UJ	0.052 UJ	0.055 J	0.054 UJ	**0.32 J**	**0.26J**	0.088 J	0.13 J	0.075 J	0.056 UJ	0.055 UJ	**0.41 J**	**0.18 J**	**0.28 J**
Nickel	30	310	**306J**	**119 J**	9.8 J	6.3 UJ	7.6 BJ	13.0 J	10.4 J	**231 J**	12.3 J	17.7 J	26.0J	**153 J**	**85.3 J**	**40.4J**	13.0 J	6.3 UJ
Selenium	3.9	180	1.1 UJ	1.2 BJ	1.1 UJ	1.0 UJ	1.0 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.1 R
Zinc	109	10000	**1,980 J**	**578 J**	20.1 J	14.4 J	30.4 J	29.8 J	18.1 J	**296J**	28.5 J	121 J	26.0 J	25.3 J	22.2 J	150 J	47.9 J	22.7 J
Cyanide	27	27	**31.1 J**	3.6 J	1.1 UJ	1.0 UJ	1.0 UJ	1.1 BJ	1.1 UJ	3.6 J	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	1.2 UJ	1.1 UJ

Notes:

All soil results reported in mg/kg - parts per million (ppm).

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Inorganic Soil Sample Analytical Results
NYSDEC October 2010 Site Characterization Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID											
			SB-30D	SB-30E	SB-30F	Field Dupicate 5	Field Dupicate 6	Field Dupicate 7	Field Dupicate 9	SB-31A	SB-31B	SB-31C	SB-31D	SB-31E
			12-16'	16-20'	20-24'					0-4'	4-8'	8-12'	12-16'	16-20'
Metals														
Arsenic	13	16	2.2 UJ	**18.4J**	2.2 UJ	2.1 UJ	**36.9J**	2.2 UJ	2.3 UJ	5.1 J	2.3 UJ	2.3 UJ	2.2 UJ	2.1 UJ
Barium	350	400	35.3 BJ	27.0 BJ	30.5 BJ	265 J	61.5 J	19.7 BJ	21.5 BJ	70.0 J	32.3 BJ	32.2 BJ	14.2 BJ	18.3 BJ
Cadmium	2.5	4.3	1.4 J	1.1 UJ	1.1 UJ	1.0 UJ	**42.7 J**	1.1 UJ	1.2 UJ	**3.0 J**	1.2 UJ	1.7 J	1.1 UJ	1.1 UJ
Chromium	30	180	5.9 J	4.8 J	4.0 J	3.0 J	10.5 J	14.1 J	16.1 J	15.9 J	4.8 J	5.7 J	28.7 J	3.9 J
Copper	50	270	23.0 J	9.9 J	7.8 J	2.1 UJ	**78.2 J**	17.7 J	21.5 J	**75.2 J**	**64.5J**	**50.1 J**	2.4 BJ	7.2 J
Lead	63	400	18.8 J	3.9 J	4.7 J	2.3 J	**418 J**	2.4 J	**68.5 J**	**169 J**	32.1 J	35.8 J	1.9 J	1.3 J
Mercury	0.18	0.81	0.056 UJ	0.054 UJ	0.061 J	0.053 UJ	0.074 J	**1.9 J**	0.058 UJ	**4.6 J**	**2.4 J**	**0.50 J**	0.054 UJ	0.053 UJ
Nickel	30	310	9.9 J	**152 J**	6.7 UJ	6.3 UJ	**189 J**	**91.5 J**	14.3 J	**944J**	**176J**	**97.9J**	7.7 BJ	8.8 J
Selenium	3.9	180	1.1 R	1.1 R	1.1 R	1.0 R	1.1 R	1.1 R	1.2 R	1.2 R	1.2 R	1.1 R	1.1 R	1.1 R
Zinc	109	10000	**269 J**	18.1 J	47.9 J	4.1 J	**2,250 J**	**1,420 J**	64.8 J	**274J**	**133 J**	**462J**	13.2 J	19.9 J
Cyanide	27	27	1.1 UJ	1.1 UJ	1.1 UJ	1.0 UJ	5.5 J	1.1 UJ	1.2 UJ	26.1 J	1.2 UJ	1.1 UJ	1.5 J	1.1 UJ

Notes:

All soil results reported in mg/kg - parts per million (ppm).

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Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			B-1A	B-1B	B-1C	B-2A	B-2B	B-3A	B-3B	B-4A	B-4B	B-4C
			0-4'	4-8'	8-12'	0-4'	4-8'	0-4'	4-8'	0-4'	4-8'	8-12'
Metals												
Arsenic	13	16	ND	ND	ND	8.88	ND	ND	ND	ND	ND	ND
Barium	350	400	36.6	16.6	18.6	24.9	23.4	6.48	25.5	29	25.6	44.4
Cadmium	2.5	4.3	**67.9**	**29.1**	**68.5**	**195**	**134**	**34.8**	**67.3**	**405**	**78.4**	**68.9**
Chromium	30	180	**286**	**78.8**	**201**	**2170**	**485**	**335**	**705**	**153**	**259**	**760**
Copper	50	270	**119**	15.2	**174**	**573**	**378**	**1650**	**1770**	**431**	**208**	**1890**
Lead	63	400	29.8	4	34	**194**	**122**	**1350**	**2,370**	35.2	32.6	**822**
Nickel	30	310	**99.2**	25.9	**884**	**1700**	**1250**	9.12	**166**	**9830**	**9700**	**11000**
Selenium	3.9	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	109	10000	**1140**	**336**	**1120**	**758**	**822**	**607**	**1380**	**843**	**889**	**4690**
Cyanide	27	27	8.5	0.92	5.6	6.9	2.2	16.4	**57.1**	10.9	5.3	10.2

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			B-6A	B-6B	B-6C	B-6D	B-5A	B-5B	SS-Hole1	B-7A	B-7B	B-7C
			0-4'	4-8'	8-12'	12-16'	0-4'	4-6'	0-2"	0-4'	4-8'	8-12'
Metals												
Arsenic	13	16	ND	ND	ND	ND	**18.8**	**25.5**	3.18	ND	ND	ND
Barium	350	400	20.6	30.9	25.9	24.1	183	98.4	8.55	20.1	19.7	17.7
Cadmium	2.5	4.3	**106**	**99.2**	**197**	**215**	**72.4**	**1960**	**445**	**68.4**	**115**	**298**
Chromium	30	180	**54.5**	**44.8**	**43**	**40.4**	**130**	**4800**	**79.1**	**61**	**92.9**	**34.8**
Copper	50	270	**877**	**938**	**645**	**596**	**3540**	**12500**	**963**	35.2	**978**	**592**
Lead	63	400	33.2	**398**	**104**	**97.8**	**932**	2200	108	11	1140	8.46
Nickel	30	310	**4120**	**632**	**1600**	**1380**	**602**	**45,900**	**49.8**	**49.9**	**34.7**	**210**
Selenium	3.9	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	109	10000	**843**	**1840**	**1050**	**942**	**4610**	**32,100**	**6,110**	107	**1,330**	**926**
Cyanide	27	27	**67.7**	23.2	24.5	27.9	**39.4**	**50.6**	21.2	8	7.1	9

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

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BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

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Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			B-9A	B-9B	B-9C	B-9D	B-10A	B-10B	B-10C	B-11A	B-11B	B-11D
			0-4'	4-8'	8-12'	12-16'	0-4'	4-8'	8-12'	0-4'	4-8'	12-16'
Metals												
Arsenic	13	16	ND	ND	ND	ND	**21.4**	ND	ND	2.18	ND	ND
Barium	350	400	76.2	24	55.6	24.8	83.7	51.1	45.6	37.9	27	25
Cadmium	2.5	4.3	1.98	**7.81**	**5.72**	**9.21**	**3.29**	**3.24**	**9.11**	1.12	1.11	0.96
Chromium	30	180	**30.4**	**70.8**	**94.5**	**37.1**	**409**	**246**	**86.2**	**33.9**	**34.3**	27.9
Copper	50	270	21.7	**691**	**292**	**209**	**218**	**354**	**180**	**72.3**	**96.8**	40.6
Lead	63	400	**116**	13	39	6.9	**260**	58	41	12.5	5.2	3.5
Nickel	30	310	**34.6**	**292**	**214**	**414**	**108**	**327**	**157**	16.7	14.9	13.4
Selenium	3.9	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	109	10000	100	**198**	**200**	**245**	**193**	**145**	88.5	90	**112**	108
Cyanide	27	27	1.4	ND	0.53	ND	14.5	0.19	0.11	0.87	ND	0.13

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			B-11C	B-12A	B-12B	B-12C	B-13A	B-13B	B-13C	B-14A	B-14C	B-14D
			8-12'	0-4'	4-8'	8-12'	0-4'	4-8'	8-12'	0-4'	8-12'	12-16'
Metals												
Arsenic	13	16	ND	ND	ND	ND	8.64	ND	ND	3.71	ND	ND
Barium	350	400	40.1	75.1	24.9	17.4	148	52.1	42.2	109	90.9	59.3
Cadmium	2.5	4.3	**2.52**	**5.83**	0.43	0.22	**32.6**	**5.16**	**12.8**	0.33	0.24	0.25
Chromium	30	180	**106**	18	11.3	6.33	**94.1**	**59.2**	**54.4**	6.68	11.4	9.12
Copper	50	270	**618**	42.2	15.5	9.45	**119**	31	37.3	20.5	28.5	27.2
Lead	63	400	53.3	81	54.1	4.58	**210**	**70.3**	39	**233**	**178**	**121**
Nickel	30	310	28.4	**160**	21.7	9.24	**188**	**71.3**	**63.7**	12.6	12.3	10.3
Selenium	3.9	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	109	10000	**633**	92.4	46.2	34.2	**264**	91.5	**321**	**169**	**112**	98.8
Cyanide	27	27	1.4	1.7	0.52	ND	30.7	1.6	3.8	ND	5.2	ND

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			B-15A	B-15B	B-15C	B-16A	CSR-1A	CSR-1B	CSR-2A	CSR-2B	B-17A	B-17B
			0-4'	4-8'	8-12'	0-4'	0-4'	4-8'	0-4'	4-8'	0-4'	4-8'
Metals												
Arsenic	13	16	2.07	ND	7.92	ND	1.61	ND	ND	1.41	ND	ND
Barium	350	400	95.8	34.9	32.1	48.1	10.2	19.2	11.2	16.98	74.8	72.6
Cadmium	2.5	4.3	0.1	ND	ND	0.1	**45.4**	0.99	0.31	1.5	0.5	0.3
Chromium	30	180	7.85	9.51	7.94	6.38	**139**	**45.1**	29.4	**59.7**	10.8	8.43
Copper	50	270	22.2	12.8	13.6	20.4	10.6	27.7	10.7	10.6	17.6	12.1
Lead	63	400	**208**	9	8.93	**125**	6.37	22.2	4	31.5	**215**	**228**
Nickel	30	310	27.8	11.4	9.03	16.6	10.7	7.5	7.95	12.7	18.2	12.6
Selenium	3.9	180	1.15	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	109	10000	**116**	86.7	41	**132**	**353**	**119**	103	79	**165**	**153**
Cyanide	27	27	ND	ND	ND	ND	0.3	ND	ND	ND	ND	ND

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

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BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			B-17C	B-18A	B-18B	B-18C	B-19A	B-19B	B-19D	B-19C	B-20A	B-20B
			8-12'	0-4'	4-8'	8-12'	0-4	4-8'	12-16'	8-12'	0-4'	4-8'
Metals												
Arsenic	13	16	ND	3.73	ND	ND	ND	ND	ND	ND	9.51	ND
Barium	350	400	21.3	128	46.5	26.4	57.7	39.3	37.8	31.7	86.2	8.41
Cadmium	2.5	4.3	ND	0.12	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	30	180	5.91	7.84	8.52	6.42	11.2	8.01	7.88	12.3	8.58	1.88
Copper	50	270	10.1	20.3	10.2	13.1	13.9	18.4	16.2	20	33.7	3.37
Lead	63	400	8.85	**244**	40.3	21.7	7.1	11.9	9	17.2	**809**	5.66
Nickel	30	310	12.8	10.1	7.94	21.2	19.2	24.8	24.7	**209**	7.53	**85**
Selenium	3.9	180	ND	ND	ND	1.18	ND	ND	ND	ND	ND	ND
Zinc	109	10000	37.5	**126**	48.3	47.2	45.8	45	45.01	**163**	87	19.8
Cyanide	27	27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			B-20C	S-3A	S-4A	DB-1	B-21A	B-21B	B-22A	B-22B	B-23A	B-23B
			8-12'	0-4'	0-4'		0-4'	4-8'	0-4'	4-8'	0-4'	4-8'
Metals												
Arsenic	13	16	ND	ND	2.08	3.34	ND	ND	6.43	2.94	9.45	3.14
Barium	350	400	27.7	29.3	8.53	92.5	209	33.8	105	73.6	101	34.9
Cadmium	2.5	4.3	ND	**29.2**	**4.21**	**2,210**	ND	ND	0.27	0.31	1.12	0.35
Chromium	30	180	5.1	**665**	**302**	**4,840**	6.95	8	12	10.1	**40.7**	6.12
Copper	50	270	8.14	**2,450**	**1,990**	**3,370**	28	26.9	23.1	18.3	36.6	14.8
Lead	63	400	17	**282**	**93.1**	**822**	**208**	29.2	**208**	**185**	**137**	50.5
Nickel	30	310	5.5	**765**	**405**	**6,440**	19.8	11.1	16.3	13.9	21.9	12.5
Selenium	3.9	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	109	10000	40.4	**84,800**	**16,100**	**10,800**	75.1	45.5	98.6	61.9	**174**	57
Cyanide	27	27	ND	23.5	**28.5**	**43.5**	ND	ND	ND	ND	ND	ND

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

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BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID									
			B-24A	B-24B	B-24C	B-25A	B-25B	DB-2A	DB-2B	B-26A	B-26B	B-27A
			0-4'	4-8'	8-12'	0-4'	4-8'	0-4'	4-8'	0-4	4-8'	0-4'
Metals												
Arsenic	13	16	**16.3**	3.73	2.01	6.77	4.32	5.81	11.7	9.03	4.57	29.3
Barium	350	400	46	44.2	24.9	120	104	47	92.5	132	86.6	79
Cadmium	2.5	4.3	1.19	2.32	1	0.24	0.3	**1,780**	1.27	**22.1**	2.45	1.27
Chromium	30	180	10.2	12.8	6.54	5.15	13	358	1,270	69.2	13.1	8.22
Copper	50	270	29.4	23.3	41.8	48.2	27.1	705	799	62.5	24.3	56.7
Lead	63	400	45.4	16	4.9	**283**	**510**	**768**	**727**	**443**	45.6	**231**
Nickel	30	310	25.9	**48**	**40.2**	12.2	10.8	**1,170**	**631**	**138**	22.7	27.1
Selenium	3.9	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	109	10000	**264**	**418**	103	93.9	86.9	**1,420**	**992**	**210**	78.2	88.1
Cyanide	27	27	ND	ND	ND	ND	ND	6.7	4.9	5.3	ND	ND

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

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J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis.

Only those metals detected in at least one sample are presented on this table.

Inorganic Soil Sample Analytical Results
EPA February 2006 Sampling Report
HM Quackenbush, 220 North Prospect Street, Herkimer, NY

Analyte	NYSDEC Unrestricted Use SCO (ppm)	NYSDEC Restricted Residential Use SCO (ppm)	Sample ID										
			B-27D	B-27B	B-27C	BG-1A	BG-1B	S-3B	S-4B	DB-3A	DB-3B	RB-01	RB-02
			0-4'	4-8'	8-12'	0-4'	4-8'	0-4'	4-8'	8-12'	0-4'		
Metals													
Arsenic	13	16	**25.4**	3.21	1.92	6.01	6.94	ND	ND	11.1	8.98	ND	ND
Barium	350	400	77.5	27.3	19.1	86.8	119	31.2	11.6	54.7	113	0.69	0.36
Cadmium	2.5	4.3	1.31	**27.2**	**38.6**	1.65	1.86	**6.62**	**6.76**	**205**	**791**	0.09	0.45
Chromium	30	180	9.51	29.8	**75.5**	12.1	23.4	**355**	**312**	**951**	**1,320**	1.76	1.84
Copper	50	270	48	**93.4**	**95.6**	28.2	41.6	**1,370**	**3,180**	**795**	**2,850**	28.4	1.55
Lead	63	400	**258**	12.8	7.12	**413**	**759**	**318**	**299**	**502**	**636**	0.62	0.18
Nickel	30	310	21.7	**41.3**	**49.1**	22	27.9	**230**	**577**	**571**	**1,710**	1.1	1.43
Selenium	3.9	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	109	10000	78.3	**177**	**249**	**245**	**256**	**69,900**	**43,800**	**1,130**	**5,100**	28.1	8.38
Cyanide	27	27	1.5	9.6	**29.5**	2.8	2.8	6.6	**78.9**	**596**	**95.5**	ND	ND

Notes:

All soil results reported in mg/kg - parts per million (ppm).

ND - Compound not detected.

NS - No Standard

BOLD - Unrestricted use SCO excedance. **BOLD** Restricted Residential SCO exceeded.

J - Estimated value. The target analyte concentration is below the quantitation limit (RL) but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analysis

Only those metals detected in at least one sample are presented on this table.

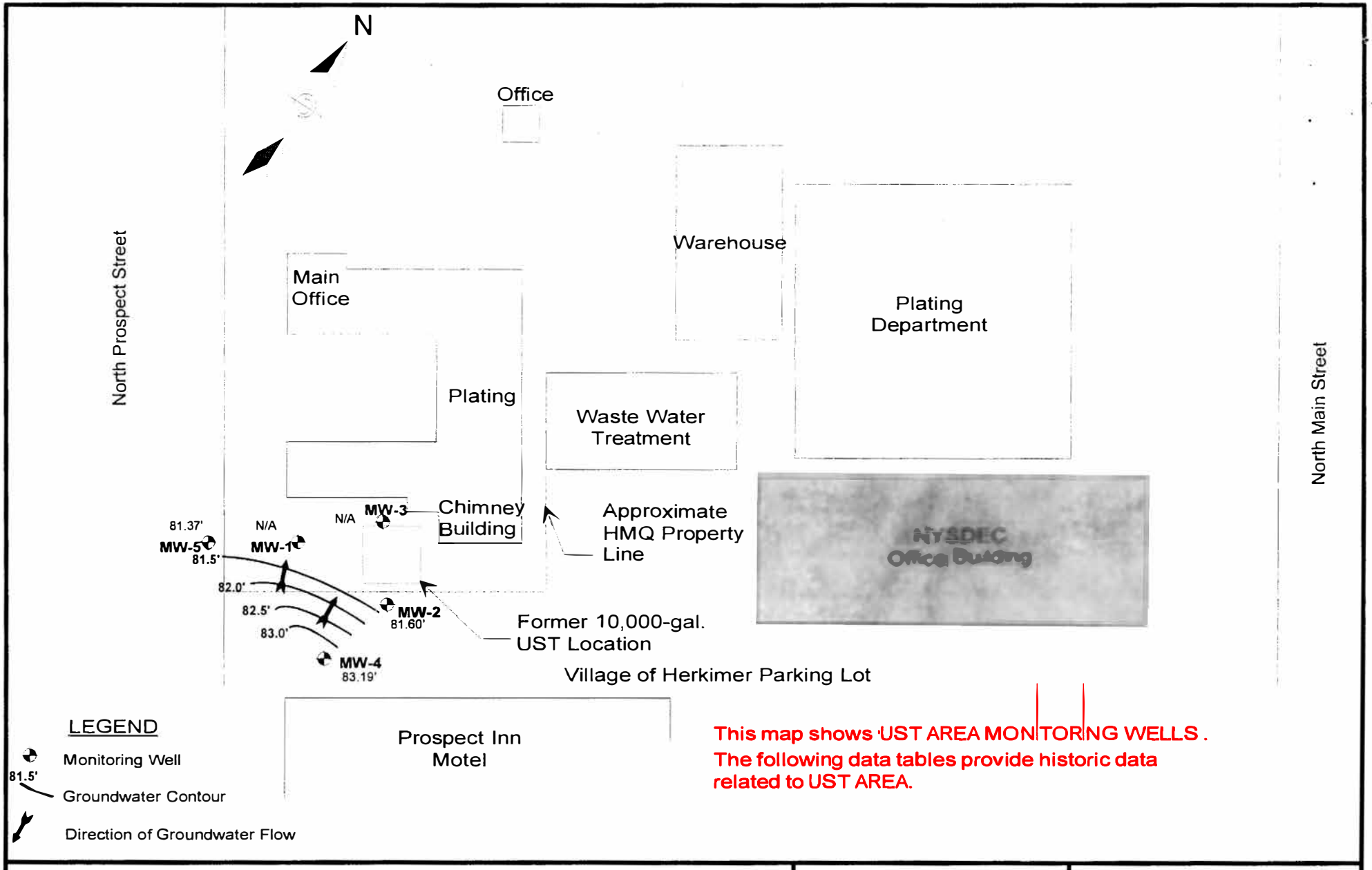
From: NYSDEC 2010 Site Characterization Report
220 North Prospect Street, Herkimer

Table 11
Groundwater Analytical Results -Inorganics (Metals/Cyanide)
H.M. Quackenbush Site
Site No. 622024
Herkimer, New York

should not be included

Analytes	TOGS 1.1.1 Guidance Values (ppb) *	MW-2	MW-3	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	DEC-1	Field Dup
Cyanide	200	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	—	0.01 UJ	0.01 UJ	**22.9 J**	**1,290 J**	0.01 UJ	0.01 UJ
Aluminum		1,540 J	788 J	100 UJ	157 J	1,110 J	215 J	338 J	289 J	882 J	1,440 J	261 J	619 J	100 UJ
Antimony		15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	R	15 U	15 U	15 U
Arsenic	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Barium	1,000	429	725	50 U	50 U	74.3	84.9	595	91.4	69.3	85.5	206	82	78.2
Beryllium	3	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Cadmium	5	5 U	5 U	**24.0 J**	5 U	5 U	5 U	5 U	5 U	**9.0 J**	**5.7 J**	**1,030 J**	5 U	5 U
Calcium		916,000 J	969,000 J	88,300 J	94,100 J	133,000 J	95,600 J	749,000 J	67,700 J	129,000 J	143,000 J	803,000 J	140,000 J	89,200 J
Chromium	50	5.9	5.4	13.8	5 U	5.1	5 U	5.1	5 U	36.3	14	5 U	5 U	5 U
Cobalt	5	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**50.8**	20 U	20 U
Copper	200	10 U	10.3	10 U	10 U	13.5	10 U	10 U	10 U	10 U	17	10 U	10 U	10 U
Iron	300	**12,300**	**5,500**	215	290	**3,840**	**603**	**406**	**480**	**2,700**	**2,390**	**422**	**1,220**	173
Lead	25	3 U	3.5 J	3 U	3 U	3.7 J	3 U	3 U	3 U	3 U	3.2 J	3 U	3 U	3 U
Magnesium	35,000	20,900	23,500	11,700	12,700	18,400	16,700	**36,400**	26,400	16,300	18,100	19,500	20,400	15,500
Manganese	300	**3,800**	**3,490**	20.2	47	**835**	**689**	**8,200**	185	**565**	**811**	**6,780**	183	**605**
Nickel	100	**144**	**363**	91.6	30 U	30 U	30 U	38	30 U	82.6	97	**952**	30 U	30 U
Potassium		6,490	9,290	7,850	6,450	5,470	11,600	8,420	2,310	10,700	8,070	12,400	9,680	11,400
Selenium	10	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Silver	50	**142 J**	12.9 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**98.1 J**	10 U	10 U
Sodium	20,000	**128,000 J**	**242,000 J**	**157,000 J**	**132,000 J**	**164,000 J**	**191,000 J**	**33,800 J**	**40,900 J**	**211,000 J**	**212,000 J**	**114,000 J**	**164,000 J**	**189,000 J**
Thallium	0.5	**99.3**	**104**	**39.4**	**45**	**58.4**	**46.9**	**98**	**39**	**58.6**	**51.2**	**101**	**56.3**	**41.7**
Vanadium	14	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U
Zinc	2,000	48.1 J	79.8 J	723 J	15.4 BJ	21.8 J	10 U	21.2 J	17.2 BJ	28.8 J	157 J	**4,740 J**	10.2 BJ	10 U
Mercury	0.7	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	**1.4 J**	0.2 UJ	0.2 UJ	**1.5 J**	**0.85 J**	0.2 UJ	0.2 UJ

Notes:
BOLD values indicate detections above TOGS Guidance Values.
R = Unreliable data
J, UJ and BJ = Data provides usable estimation of conditons at time of sampling.
U = Compound was analyzed for, but not detected.
* = Guidance values in accordance with Technical & Operational Guidance Series (TOGS) 1.1.1.
All sample results reported in parts per billion (ppb).



ENVIRONMENTAL PRODUCTS & SERVICES, INC.		DATE: September 1997	PROJECT NO.: S2058
Groundwater Contour Map Data Collected on 9/30/97	H.M. Quackenbush, Inc. 220 Prospect Street Herkimer, New York	SCALE: Approx. 1' = 60'	FIGURE NO.: 1 1
		DRAWN BY: Geoscience	LOCATION: Herkimer , NY

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 10/10/1995
Ambient Project Number: 210818ENVA

Sample Location		MW-1	MW-2
Sample Date		10/10/1995	10/10/1995
Sample Time			
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**
1,2,4-Trimethylbenzene	5	1.2	**66.1**
1,3,5-Trimethylbenzene	5	2.1	**278**
Benzene	1	**3.2**	<25
Ethylbenzene	5	**5.6**	<25
Total Xylenes	5	6.2	106
Naphthalene	10	**24.9**	**745**
n-Butylbenzene	5	**9**	**410**
n-Propylbenzene	5	4.7	**460**
Isopropylbenzene	5	2.8	**69.4**
n-Propylbenzene	5	4.7	<25
sec-Butylbenzene	5	2.7	**162**
Toluene	5	0.8	<25

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 1/16/1996
Ambient Project Number: 210818ENVA

Sample Location		MW-4	MW-5
Sample Date		1/16/1996	1/16/1996
Sample Time			
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**
Trichloroethene	5	ND	**17.1**

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 4/2/1996
Ambient Project Number: 210818ENVA

Sample Location		MW-1	MW-2
Sample Date		4/2/1996	4/2/1996
Sample Time			
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**
1,2,4-Trimethylbenzene	5	**14.4**	<1
1,3,5-Trimethylbenzene	5	**6.3**	<1
Benzene	1	**1.3**	**4.3**
Ethylbenzene	5	**5.5**	<1
Total Xylenes	5	2.9	<1
Naphthalene	10	8.4	<1
n-Butylbenzene	5	**16.6**	3.9
n-Propylbenzene	5	**9.7**	5.5
4-Isopropyltoluene	5	1.6	<1
Isopropylbenzene	5	2	2.9
sec-Butylbenzene	5	5	1.9
Toluene	5	<1	<1
SVOCs - EPA Method 8270D			
Acenaphthene	20	4	2.3
Chrysene	0.002	**3.9**	**1**
Fluorene	50	7.7	3.1
Naphthalene	10	13.1	<1
Phenanthrene	50	23.3	6
Pyrene	50	4	1.2

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 7/3/1996
Ambient Project Number: 210818ENVA

	Sample Location	MW-1	MW-2	MW-4	MW-5
	Sample Date	7/3/1996	7/3/1996	7/3/1996	7/3/1996
	Sample Time				
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**	**Results (µg/L)**	**Results (µg/L)**
1,2,4-Trimethylbenzene	5	**8**	<1	<1	<1
1,3,5-Trimethylbenzene	5	3.2	<1	<1	<1
Benzene	1	0.8	**2.4**	<1	<1
Ethylbenzene	5	3	<1	<1	<1
Total Xylenes	5	2.1	<1	<1	<1
Naphthalene	10	9.2	3.7	5.4	<1
n-Butylbenzene	5	**9.6**	**12.5**	2.3	<1
n-Propylbenzene	5	**5.4**	2.4	<1	<1
Isopropybenzene	5	1.3	1.7	<1	<1
sec-Butylbenzene	5	2.2	<1	<1	<1
SVOCs - EPA Method 8270D					
Acenaphthene	20	2.2	1.2	<1	<1
Chrysene	0.002	**1.5**	<1	2.2	<1
Fluoranthene	50	<1	<1	3.1	<1
Fluorene	50	4.5	1.7	1	<1
Naphthalene	10	4.7	<1	<1	<1
Phenanthrene	50	10	1.2	1.5	<1
Pyrene	50	1.4	<1	2.6	<1

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 10/24/1996
Ambient Project Number: 210818ENVA

Sample Location		MW-2	MW-4	MW-5
Sample Date		10/24/1996	10/24/1996	10/24/1996
Sample Time				
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**	**Results (µg/L)**
Benzene	1	**2.4**	<1	<1
Naphthalene	10	4.1	<1	<1
SVOCs - EPA Method 8270D				
Acenaphthene	20	1.6	<1	<1
Chrysene	0.002	**1.4**	<1	<1
Fluorene	50	3.1	<1	<1
Phenanthrene	50	4.9	<1	<1

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 1/15/1997
Ambient Project Number: 210818ENVA

Sample Location		MW-2	MW-4	MW-5
Sample Date		1/15/1997	1/15/1997	1/15/1997
Sample Time				
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**	**Results (µg/L)**
Benzene	1	**1**	<0.7	<0.7
Toluene	5	1	<1	<1
SVOCs - EPA Method 8270D				
Benzo(b)fluoranthene	0.002	**1**	**1**	<1
Chrysene	0.002	<1	**1**	<1
Fluoranthene	50	<1	1.4	<1
Fluorene	50	1	<1	<1
Phenanthrene	50	1.4	<1	<1

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 4/10/1997
Ambient Project Number: 210818ENVA

Sample Location		MW-2	MW-4	MW-5
Sample Date		4/10/1997	4/10/1997	4/10/1997
Sample Time				
SVOCs - EPA Method 8270D	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**	**Results (µg/L)**
Benzo(b)fluoranthene	0.002	**2.7**	<1	<1
Benzo(k)fluoranthene	0.002	**2.7**	<1	<1
Benzo(g,h,i)perylene	?	2.1	<1	<1
Chrysene	0.002	**2.6**	<1	<1
Fluoranthene	50	3.8	<1	<1
Indeno(1,2,3-cd)pyrene	0.002	**1.7**	<1	<1
Pyrene	50	3.1	<1	<1

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).

µg/L = Micrograms per liter.

ND = Analyte was not detected at specified laboratory reporting limit.

N/A = Not Applicable.

Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 9/30/1997
Ambient Project Number: 210818ENVA

Sample Location		MW-2	MW-4	MW-5
Sample Date		9/30/1997	9/30/1997	9/30/1997
Sample Time				
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**	**Results (µg/L)**
Benzene	1	**4.3**	<0.7	<0.7
Naphthalene	10	1.3	<1	<1
n-Propylbenzene	5	1.6	<1	<1
SVOCs - EPA Method 8270D				
Acenaphthene	20	2.1	<1	<1
Benzo(a)pyrene	0.0	<1	1.6	<1
Benzo(b)fluoranthene	0.002	<1	**2.2**	<1
Benzo(k)fluoranthene	0.002	<1	**1.6**	<1
Benzo(g,h,i)perylene	?	<1	1.4	<1
Chrysene	0.002	**2.6**	**2.5**	<1
Fluoranthene	50	<1	2.6	<1
Fluorene	50	3.4	<1	<1
Phenanthrene	50	4.8	<1	<1
Pyrene	50	2.6	2.1	<1

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 12/8/1997
Ambient Project Number: 210818ENVA

Sample Location		MW-2	MW-4	MW-5
Sample Date		12/8/1997	12/8/1997	12/8/1997
Sample Time				
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**	**Results (µg/L)**
Benzene	1	**2.3**	<0.7	<0.7
Naphthalene	10	1.9	<1	<1
n-Propylbenzene	5	1.1	<1	<1
SVOCs - EPA Method 8270D				
Acenaphthene	20	1.8	<1.3	<1
Benzo(a)pyrene	0.0	<1	3.3	<1
Benzo(b)fluoranthene	0.002	<1	**6.4**	<1
Benzo(k)fluoranthene	0.002	<1	**2.5**	<1
Chrysene	0.002	1.2	**4**	<1
Fluoranthene	50	<1	3.9	<1
Fluorene	50	2.4	<1.3	<1
Phenanthrene	50	4.4	<1.3	<1
Pyrene	50	<1	3.2	<1

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).

µg/L = Micrograms per liter.

ND = Analyte was not detected at specified laboratory reporting limit.

N/A = Not Applicable.

Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 12/11/1998
Ambient Project Number: 210818ENVA

Sample Location		MW-4	MW-5
Sample Date		12/11/1998	12/11/1998
Sample Time			
SVOCs - EPA Method 8270D	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**
Benzo(a)anthracene	0.002	<1	**1.3**
Chrysene	0.002	<1	**1.2**

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 6/7/2000
Ambient Project Number: 210818ENVA

Sample Location		HMQ-GW-MW2	HMQ-GW-MW4	HMQ-GW-MW5
Sample Date		6/7/2000	6/7/2000	6/7/2000
Sample Time				
VOCs - EPA Method 8260	**NYSDEC SGVs**	**Results (µg/L)**	**Results (µg/L)**	**Results (µg/L)**
n-Butylbenzene	5	2.4	<1	<1
n-Propylbenzene	5	4	<1	<1
Isopropybenzene	5	2.8	<1	<1
sec-Butylbenzene	5	2	<1	<1

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

Table 2 - Groundwater Sample Laboratory Analytical Results
Site: 220 North Prospect Street, Herkimer, NY
Sample Collection Date: 11/15/2000
Ambient Project Number: 210818ENVA

Sample Location		HMQ-GW-MW-02	HMQ-GW-MW-04	HMQ-GW-MW-05
Sample Date		11/15/2000	11/16/2000	11/15/2000
Sample Time				
VOCs - EPA Method 8260	NYSDEC SGVs	Results (µg/L)	Results (µg/L)	Results (µg/L)
n-Butylbenzene	5	1.1	<1	<1
n-Propylbenzene	5	2.7	<1	<1
Isopropybenzene	5	2	<1	<1
sec-Butylbenzene	5	1.8	<1	<1

Notes:

Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) NYCRR Part 703.5 and the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (NYSDEC SGVs).
µg/L = Micrograms per liter.
ND = Analyte was not detected at specified laboratory reporting limit.
N/A = Not Applicable.
Analytes detected with concentrations above NYSDEC SGVs are **bolded**.

NOTE

Complete reference documents can be provided upon request.

ATTACHMENT 2

SAMPLING AND ANALYSIS PLAN

HMQ 1890, LLC

SAMPLING AND ANALYSIS PLAN
HMQ Site Restoration and STEAM Center
220 North Prospect Street, Herkimer, New York

BCP Site No.: C622024

14 October 2022
REVISED 25 July 2023

Prepared for:

HMQ 1890, LLC
P.O. Box 13
Herkimer, NY 13350

Prepared by:

Ambient Environmental, Inc.
828 Washington Avenue
Albany, NY 12203

Ambient Project No. 210818ENVA

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APPENDICES

1.0 INTRODUCTION

This document represents the Sampling and Analysis Plan (SAP), which is Attachment 2 of the Remedial Investigation Work Plan for the HMQ Site Restoration and STEAM Center Brownfield Cleanup Program (BCP) site at 220 North Prospect Street in the Village of Herkimer, NY (hereinafter the "Site"). This SAP describes the sampling program and procedures to be followed during all sample collection and handling tasks and other investigative tasks associated with this project. It is anticipated that Ambient Environmental, Inc. (Ambient) will implement this SAP.

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2.0 SAMPLING ACTIVITIES AND PROCEDURES

Soil, groundwater, building materials and waste characterization samples will be collected and analyzed during implementation of the Remedial Investigation (RI) and address data gaps and allow for an evaluation of potential remedial alternatives. Soil vapor samples may also be collected and analyzed. Detailed field sampling procedures, proposed sampling locations, and analyses are described in the following sections of this SAP. A detailed summary outlining the sampling program is presented in the accompanying Quality Assurance Project Plan (QAPP) on Table 6-1 of that document (See Attachment 3 of the RI Work Plan). Detailed sample collection/handling and record keeping procedures are presented in Appendix A of this document.

2.1 ANALYTICAL PROCEDURES

Soil and water sample analyses to be completed as part of the RI are as follows: metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). Selected samples will also be analyzed for pesticides, Polychlorinated Biphenyls (PCBs), Per- and Polyfluoroalkyl Substances (PFAS) and 1,4-Dioxane. Samples will be analyzed by a New York State Department of Health (NYSDOH) ELAP-certified laboratory utilizing USEPA SW-846 third addition methodologies as appropriate. Analytical results will be reported using ASP 2000 category B QA/QC backup data packages as described in the most current DEC Analytical Services Protocol (ASP). Full category B deliverable will be provided, and a Data Usability Summary Report (DUSR) will be prepared by an independent 3rd party data validator. Waste characterization samples may also be analyzed utilizing TCLP extraction and analyses for VOCs, SVOCs, RCRA metals, PCBs, and potentially pesticides, herbicides and other parameters (e.g. ignitability, corrosivity) as required by the disposal facility. Waste characterization samples will not be included in the DUSR.

It is anticipated that Alpha Analytical, Inc. (Alpha), a NYSDOH-approved laboratory, will be utilized for all analytical work.

2.2 REMEDIAL INVESTIGATION SAMPLING TASKS

Dig Safely New York will be contacted at least three business days prior to commencing any ground intrusive activities to complete a public utility mark-out. Furthermore, Ground Penetrating Radar will be conducted to evaluate the Site for buried features. Excavation safety is discussed further in the Health and Safety Plan (HASP) provided as Attachment 4 of the RI Work Plan.

2.2.1 Ground Penetrating Radar

A Ground Penetrating Radar Survey (GPRS) of the entire accessible, exterior portion of the Site will be conducted. A 400 MHz GPR antenna mounted in a stroller frame which rolls over the surface will be utilized for the GPRS. Data will be displayed on a screen and marked in the field in real time. GPR works by sending pulses of energy into a material and recording the strength and the time required for the return of the reflected signal. Reflections are produced when the energy pulses enter into a material with different electrical properties from the material it left. The strength of the reflection is determined by the contrast in signal speed between the two materials. The total depth achieved can be as much as eight feet or more with this antenna but can vary widely depending on the conductivity of the materials. Conductive soil types such as clay may limit depths to three feet or less. As depth increases, targets must be larger in order to be detected and nonmetallic targets can be especially difficult to locate. Depths provided will be treated as estimates as their accuracy can be affected by multiple factors. Results of the GPRS, such as the discovery of potential buried tanks, dry wells, or other structures, will be used to adjust site investigation activities as appropriate.

2.2.2 Soil Borings

An estimated 12 soil borings (excluding borings for monitoring wells) will be advanced to various depths below ground surface (bgs) based on field screening and site conditions. Soil borings will be advanced using ‘direct push’ technology to collect soil samples continuously from grade to total depth. Soil borings will be logged and continuously scanned with a Photoionization Detector (PID) by an on-site geologist/qualified

environmental professional. Detailed logs describing soil type, color, odor, moisture, etc. and all detected PID readings will be prepared for each boring. Additional soil borings may be advanced based on field observations. In general, borings will be advanced to approximately 16 feet bgs; borings may be advanced deeper based on site observations.

2.2.3 Soil Sampling

An estimated three samples per boring will be analyzed for TAL metals with additional samples 'archived' for future analyses if needed. One-half (50%) of those samples will be analyzed for PFAS. Based on field screening and observations, an estimated six samples (primarily collected from the former UST area) will be analyzed for VOCs and SVOCs. Four selected soil samples will be analyzed for PCBs and 1,4-Dioxane. In addition, an estimated five soil samples (one per well soil boring) will be collected during advancement of borings installation of new monitoring wells (see below). Those soil samples will be analyzed for TCL VOCs, TCL SVOCs, and TAL metals. As describe in the QAPP, analytical methods will be as follows: TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270), TAL metals (Method 6010/7470 for mercury/9010 for cyanide), PCBs (Method 8082), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270).

2.2.4 Monitoring Well Installations

Shallow overburden monitoring wells will be installed at five locations on the Site as follows:

- One at the north-central border of the Site (near a transformer pad);
- One in the area of a steel building in the northern corner of the Site (after building demolition);
- One in the courtyard area;
- One in the southwest corner of the Site along North Prospect Street;
- One in the former UST area.

Soil samples will be logged, and field screened with a PID to monitor for the potential presence of VOC vapors. Each of the monitoring wells will be constructed of two-inch-diameter PVC riser and ten feet of two-inch-diameter, 0.01-inch slotted PVC well screen. The well screen will be installed to "straddle" the top of the water table in the shallow, unconfined groundwater unit. The actual depth of the wells will be dependent on observed field conditions.

A sand pack will be installed around the well screens and will extend one to two feet above the top of the screens. A one-foot to two-foot-thick seal of hydrated bentonite pellets will be installed above the sand pack to backfill the remainder of the well annulus to within one foot of ground surface. A flush-mount secured curb box will then be installed to finish each well. Following installation, reference points will be marked on the top of the PVC at each well location to allow for surveying.

2.2.5 Monitoring Well Point Development

Development of all new and existing monitoring wells will begin after final completion of the monitoring well network. Water level measurements will be collected prior to well development. Peristaltic pumps will be used for well development, purging and sampling (see below). A flow rate will be established to achieve a stable pumping level that will remain constant during well development (see section 5.4.5). Development water will be placed in a drum or tank, properly labeled and stored on-site for future proper disposal per DER-10 Section 3.3 (e) 5.

2.2.6 Groundwater Sampling

Groundwater samples will be collected from the seven existing groundwater monitoring wells and five new groundwater monitoring wells no sooner than 48 hours after final well development. Water level measurements will be collected prior to purging. Peristaltic pumps will be used for well development, purging and sampling. A flow rate will be established to achieve a stable pumping level that will remain constant during well development, while monitoring the indicator parameters for stabilization, and while collecting the samples. Emphasis should be put on minimizing and stabilizing pumping

stress. During well purging, monitor indicator field parameters (turbidity, temperature, specific conductance, pH, ORP, DO) will be measured at approximately five-minute intervals. All measurements, except turbidity, will be obtained using a flow-through-cell. Samples for turbidity measurements will be obtained before water enters the flow-through-cell. Purging will be considered complete and sampling will begin when all the above indicator field parameters have stabilized as defined in the *USEPA Region I Low Stress (Low Flow) Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (July 30, 1996, Revised: September 19, 2017).*

Purge water will be placed in a drum or tank, properly labeled and stored on-site for future proper disposal per DER-10 Section 3.3 (e) 5.

Groundwater samples will be analyzed for TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270), and TAL metals (Method 6010/7470 for mercury/9010 for cyanide). Samples from five selected wells will be analyzed for PCBs (Method 8082), Pesticides (Method 8081), PFASs (PFOA and PFOS by EPA Method Mod 537.1) and 1,4-Dioxane (Method 8270 SIM).

2.2.7 Evaluation of Areas of Concern (AOCs)

Several 'pits' such as hydraulic lift pits, catch basins and Oil-Water Separators (OWS) are present at the Site. Those features need to be evaluated to determine if they have potentially released contaminants of concern to the environment. Sampling adjacent to and possibly below those features may be needed. As necessary, removing waste from the feature and disposing of the waste, cleaning the features, and inspecting the structures (possibly including hydrostatic testing) will be conducted. Soil samples may be collected under the structures. Any generated waste will be properly handled, characterized (see Work Plan section 5.4.10), and disposed.

2.2.8 Interior Samples

Interior samples will be collected and analyzed to determine what remedial efforts might be needed in portions of buildings to be restored and re-purposed. Interior samples will be collected as summarized below.

Concrete samples. Samples of concrete floors will be collected in the former plating area (basement of factory building), the connector building, and the former plating building. An estimated ten samples will be analyzed for RCRA metal, and an estimated four samples will also be analyzed for PCBs.

Wood samples. Oil-soaked wood is present in the factory building. An estimated six wood samples (two per floor) will be collected and analyzed for PCBs.

2.2.9 Surface Soil Samples

Almost all of the Site is currently covered with pavement or structures, greatly limiting site access for surface soil sampling. Surface soil samples will be collected in areas that do not have impervious surfaces (i.e., pavement or concrete). It is anticipated that surface soil samples will be collected at four locations and analyzed for TCL SVOCs (USEPA Method 8270), TAL metals (Method 6010/7470 for mercury/9010 for cyanide), PCBs (Method 8082), and Pesticides (Method 8081). Surface soil samples will not be analyzed for VOCs unless PID monitoring indicates the potential presence of VOCs.

2.2.10 Surveying

Upon completion of all field tasks, the horizontal and vertical locations of all soil borings and monitoring wells will be surveyed by a New York State (NYS) licensed land surveyor and updated on the existing site survey map. Vertical elevations will be recorded to the nearest 0.01-foot. Top-of-PVC casing elevations for each monitoring well will also be recorded to the nearest 0.01-foot to establish water table elevations and groundwater flow direction. In addition, all other reasonably accessible sampling points

(i.e., surface water, surface soil, etc.) will be surveyed and referenced to an onsite fixed datum point.

2.2.11 Waste Characterization Sampling

It is anticipated that waste materials in the former factory building and wastewater treatment area will need to be disposed off-site. As such, samples of waste material will be collected during the RI and analyzed for waste characterization parameters such as VOC, SVOC, PCBs, metals, ignitability, reactivity and corrosivity. Some analyses will include TCLP extraction. Waste materials may include sludge from interior waste pits and floor drains.

2.2.12 Soil Vapor Evaluation

The results of the initial soil and groundwater evaluation will be used to determine the locations of soil vapor sampling points across the Site. The soil vapor sampling will also consider future use. It may be prudent to perform soil vapor sampling after buildings are demolished; therefore, the timing of the soil vapor evaluation will be discussed with NYSDEC. Once the scope and timing of the soil vapor evaluation is determined, a soil vapor sampling workplan will be developed as an addendum to the RIWP for review and approval by NYSDEC. The workplan approach and procedure will be in accordance with NYSDEC DER-10 (May 2010) Section 3.6. The soil vapor sampling workplan will be implemented upon approval by NYSDEC.

NOTE- As stated in Remedial Action Work Plan section .4.12, any Interim Remedial Measures (IRMs) will be described in a separate IRM Workl Plan.

3.0 DATA EVALUATION

Soil analytical results will be compared soil cleanup objectives and supplemental soil cleanup objectives identified in 6 NYCRR 375-6.8 as well as NYSDEC CP-51: Soil Cleanup Guidance. Water analytical results will be compared to 6 NYCRR Part 700-706: NYSDEC Water Quality Regulations for Surface Waters and Groundwater. NYSDEC Technical and Operational Guidance Series 1.1.1: ambient water quality standards and guidance values will be referenced in the absence of water quality standards.

Data generated for waste characterization sampling will not require data validation.

4.0 DOCUMENTATION PROCEDURE

Ambient will maintain complete documentation of all remediation activities so that decision processes, actions and results can be recreated as needed. As such, a history of the project will be maintained. Documentation of the activities for various aspects of the project will be accomplished as presented below.

4.1 FIELD ACTIVITIES

Field Notebook – Ambient will maintain a bound field notebook that will document dates, times and duration of all field activities. The field notebook will be maintained by the Site Manager. All notebook entries will be made in ink on consecutive pages.

Photographs - Photographs will be taken of all significant site activities.

Calibration Records - Calibration activities for all field instrumentation will be maintained in the field notebook.

Geologic Logs - Observations pertaining to site geology made during all sub-surface drilling or excavations activities will be recorded in the field notebook.

Safety Forms - Sign-in forms, levels of personal protection, air-monitoring results, incidents reporting forms and other safety-related forms will be maintained in the field notebook, as necessary.

4.2 ENVIRONMENTAL SAMPLING

Chain-of-Custody Forms - All sample handling will be recorded on chain-of custody forms and associated labels.

4.3 MANAGEMENT REPORTS

Monthly Reports - Monthly progress reports will be issued starting with the date the Brownfield Cleanup Agreement (BCA) is executed and ending with the issuance of a

Certificate of Completion. Monthly progress reports will adhere to the requirements of DER-10 Section 5.7.

4.4 FINAL REPORT

A RI Report will be submitted to NYSDEC upon completion of the RI.

The RI report will include drawings, data summary tables, laboratory reports, Data Usability Summary Reports, Site photographs and other support documents as required by DER-10.

Additionally, electronic data will be submitted for all media, including their respective laboratory analysis results.

SAP - APPENDIX A

GENERAL SAMPLING PROCEDURES FOR FIELD INVESTIGATION

GENERAL SAMPLING PROCEDURES

1.0 INTRODUCTION

During the course of the remedial action program, the applicable procedures listed below will be followed for sample collection.

- Accurate and detailed field notes will be maintained including detailed descriptions of sample collection and handling procedure and sample characteristics.
- Sampling procedures will be performed with the overall intent of collecting representative samples and minimizing sample disturbance.
- Laboratory-supplied sample bottles (pre-preserved as applicable) will be labeled with the sample location, identification number, and date and time of sampling prior to being filled with sample material.
- All sample collection, handling and shipping information will be recorded in the field notebook and chain of custody documents as appropriate.

2.0 GENERAL SAMPLE COLLECTION PROCEDURES

All non-dedicated sampling equipment will be suitably cleaned before entry to the Site, between sampling locations and intervals, and prior to departure from the Site.

1. All sample containers will be labeled with: 1) site name; 2) project number; 3) sample number; 4) location description 5) sample interval; 6) date; 7) time of collection; and 8) initials of sampler.
2. The sample collector will record descriptions of soil samples as to 1) soil type; 2) color; 3) odor; 4) moisture content; 5) texture; 6) grain size, shape and angularity; 7) consistency; and 8) any other observations, particularly relating to waste materials or unnatural materials. For water samples, the sample collector will describe 1) color; 2) odor; 3) visual turbidity; and 4) any observed phase separation.

3. Sample containers will be capped immediately after filling and placed into a chilled cooler containing sufficient ice or cold packs to cool the samples to 4°C for transport to the laboratory.
4. All equipment used to collect samples for analysis will be either decontaminated before each use at a particular sample location or will be dedicated/disposable such that decontamination will not be required.

3.0 SOIL/BACKFILL SAMPLE COLLECTION PROCEDURES

The applicable procedures noted below will be followed during collection of soil samples.

1. Soil samples will be collected using dedicated sampling equipment, a trowel or stainless-steel spoon or a clean nitrile-gloved hand. Other equipment used during sampling such as bowls and mixing spoons will be made of stainless steel.
2. All samples will be screened immediately upon sample retrieval with a PID. Samples will be collected directly from the sampling tool into the appropriate laboratory-supplied sample containers. Sample container, preservation and holding time information for the anticipated soil sample analyses is provided in the table below. Samples for VOCs will be collected so that there is "zero headspace" in the sample container. Composite samples (if any) for all parameters aside from VOCs will be mixed/homogenized in a decontaminated stainless-steel pan or bowl (VOCs cannot be mixed and will be transferred directly from the sampling tool). Soil samples will not require preservation except for maintaining the media to approximately 4°C.

Sample Container, Preservation and Holding Times for Anticipated Soil Sample Analyses

	TCL VOCs	TCL SVOCs	Pesticides/PCBs	TAL Metals	PFOAs
Container	4 oz Amber Glass Jar	4 oz Amber Glass Jar	4 oz Amber Glass Jar	8 oz Amber Glass Jar	4 oz Plastic (no Teflon Lid)
Preservation	Zero Headspace; cool to 4°C	Cooled to 4°C	Cooled to 4°C	Cooled to 4°C	Cooled to 4°C; double bag ice
Hold Time	14 days	14 days/40 days	14 days/40 days	365 days 28 days-Hg	14 days/40 days

Note: 7 days/40 days means time to extraction/analyses

NOTE- Samples to be analyzed for PFOS/PFOA will be collected in accordance with NYSDEC Guidance "Sampling, Analyses and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, June 2021

3.1 Materials

The following materials will be available during sampling activities:

- Health and safety equipment (PPE, PID, etc.);
- Sample retrieval device (trowel, bailers, spoons, etc.) ;
- Stainless steel spatulas, bowls and scoops;
- Polyethylene sheeting;
- Sample containers and chain-of-custody forms;
- Transport container with cold source (i.e., cooler with ice or cold packs);
- Field notebook;
- Decontamination supplies; and
- Aluminum foil and Zip-lock type bags.

4.0 GROUNDWATER SAMPLE COLLECTION PROCEDURES

Purging and sampling methods will either a peristaltic pump or a disposable bailer. Prior to sampling, all wells will be purged until field parameters including pH, temperature, conductivity, DO, ORP, and turbidity have stabilized or at least the equivalent of three well volumes have been removed. Although not anticipated, wells with low recovery rates will be evacuated to near dryness once and allowed to recover sufficiently for samples to be collected. Wells with low recovery rates will be characterized as those wells where purging at a rate of 1,000 ml/min or less dewaters the well. All measuring equipment will be properly calibrated and decontaminated between wells.

4.1 Materials

The following materials will be available for groundwater sampling activities.

- Water level indicator (accurate to 0.01 foot);

- New dedicated bailers;
- Polypropylene/nylon rope;
- Multi-parameter water quality meter with capabilities to measure pH, DO, temperature, ORP, conductivity and turbidity;
- A flow-thru cell (optional);
- PID;
- Sample bottles/labels;
- Chain-of-custody forms;
- Thermally insulated container with cold source;
- Sample preservation (may be added to bottle by analytical laboratory);
- A 0.45-micron polypropylene filter for dissolved iron samples from MW-01 only;
- Field book;
- PPE as needed (gloves, etc.); and
- Decontamination supplies (detergent, water, hexane, methanol and/or nitric acid rinses (if necessary), buckets, brushes, etc.).

4.2 Groundwater Sampling Protocol

Groundwater sampling protocol is described below.

- Open well casing and monitor headspace for VOCs. If greater than 5 ppm detected, allow well to vent for 5 to 10 minutes. Re-measure headspace for VOCs. Record PID readings in field book.
- A water level indicator will be used to accurately measure the depth to groundwater from a surveyed datum on the top of the PVC well casing. This measurement will be used in conjunction with the total depth of the well to calculate the standing volume of water in the well as well as to establish the water table elevation for groundwater flow direction purposes.
- Prior to sampling, the wells will be purged until field parameters (pH, temperature, conductivity, DO, ORP, and turbidity) have stabilized or at least the equivalent of three well volumes have been purged. The indicator parameters will

be considered stabilized when three consecutive readings collected five minutes apart meet the following criteria:

- pH is within +/- 0.1 pH unit;
- temperature range is within +/- 3%;
- specific conductance range is within +/- 3%;
- dissolved oxygen concentration is within +/-10%;
- ORP is within +/- 10 mV; and
- turbidity is within +/- 10% (ideally less than 10 NTU)

Field parameter measurements will be made and recorded in the field book along with the actual volume removed. Wells with low recovery rates will be evacuated to near dryness once, then allowed to recover sufficiently for samples to be collected. Wells with low recovery rates will be characterized as those wells where pumping at a rate of 1000 ml/minute or less dewaters the well.

- Within eight hours of purging or as soon as the well has sufficiently recovered, groundwater samples will be collected using disposable bailers. The laboratory-supplied vials for VOC analysis will be filled first. Care will be taken not to agitate the sample when transferring it into the laboratory-supplied vials. Samples for any additional parameters will be collected subsequent to the VOC samples. Assuming adequate recharge, all samples will be collected within eight hours of purging.
- Pumping rates during purging and sample collection will be managed appropriately to maintain minimal turbidity for the collection of total metals samples (if needed).
- VOC samples will be collected in 40 ml glass vials with zero headspace and will be preserved with hydrochloric acid to a pH of less than two (in accordance with the instructions provided in the Region II CERCLA QA Manual, Revision 1, October 1989, p. 31). The sample bottles for all other analytical parameters will be properly preserved (e.g. metals samples will be preserved with nitric acid). Sample container, preservation and holding time information for the anticipated groundwater sample analyses is provided in the table below. Care will be taken to

not overfill the bottles during sample collection thereby ensuring proper sample preservation.

Sample Container, Preservation and Holding Times for Anticipated Groundwater Sample Analyses

	TCL VOCs	TCL SVOCs	TAL Metals	Sulfate	PFOAs
Container	(3) 40 mL VOA Vials	(2) 250 mL Amber Glass Jars	500 mL Plastic Container	250 mL Plastic Container	(2) 250 ML plastic w/ plastic lid (no Teflon)
Preservation	Zero Headspace, HCl & Cooled to 4°C	Cooled to 4°C	HNO_3 & cooled to 4°C	Cooled to 4°C	Cooled to 4°C (double bagged ice); stored away from other sample containers
Hold Time	14 Days	7 Days/40 days	365 days 28 Days for Hg	28 Days	14 days/40 days

Note: 7 days/40 days means time to extraction/analyses

- Sample containers will be capped immediately after filling and placed into a chilled cooler for transport to the laboratory.
- Sampling will progress from the least contaminated well to the most contaminated well, based on the results of previous sampling and analysis. Samples will be properly preserved, stored on ice and transported to the laboratory under proper chain-of-custody protocol.

NOTE- Samples to be analyzed for PFOS/PFOA will be collected in accordance with NYSDEC Guidance "Sampling, Analyses and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, June 2021.

ATTACHMENT 3

QUALITY ASSURANCE PROJECT PLAN

HMQ 1890, LLC

QUALITY ASSURANCE PROJECT PLAN
HMQ Site Restoration and STEAM Center
220 North Prospect Street, Herkimer, New York

BCP Site No.: C622024

14 October 2022
REVISED 25 July 2023

Prepared for:

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Ambient Project No. 230714ENVA

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1.0 INTRODUCTION

This document represents the Quality Assurance Project Plan (QAPP), which is Attachment 3 of the Remedial Investigation Work Plan for the HMQ Site Restoration and STEAM Center Brownfield Cleanup Program (BCP) site at 220 North Prospect Street in the Village of Herkimer, NY (hereinafter the "Site"). This QAPP describes the field and laboratory Quality Assurance (QA) and Quality Control (QC) measures to be implemented during the project. This QAPP was prepared in accordance with New York State Department of Environmental Conservation (NYSDEC) DER-10 Technical Guidance for Site Investigation and Remediation (DER-10) and USEPA guidance document entitled "EPA Requirements for Quality Assurance Project Plans" dated March 2001.

2.0 SITE GOALS

As described in the RI Work Plan, the goals of the RI are to address data gaps identified in the investigations previously performed at the Site by NYSDEC and USEPA which identified constituents of concern (COCs) in soil and groundwater at the Site and to further assess the nature and extent of constituents of concern in various media onsite.

Prior work at the Site has included soil, waste and groundwater sampling to identify potential constituents of concern at the Site. Pending site activities will consist of soil borings, monitoring well point installations and multi-media sampling.

3.0 QUALITY ASSURANCE OBJECTIVES

3.1 DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) are based on the concept that various uses of data collected during the RI require varying degrees of data quality. Data quality is defined as the degree of certainty in a data set with respect to precision, accuracy, representativeness, completeness and comparability (PARCC). DQOs are qualitative and quantitative statements specifying the required quality of data necessary to support RI and future remediation activities. These activities include site screening and site characterization. A description of PARCC parameters is described below.

Precision is a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision exist depending upon the "prescribed similar conditions".

Accuracy is the degree of agreement of a measurement (or an average of measurements) with an accepted reference or "true value". Accuracy is one estimate of the bias in a system.

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions.

Comparability expresses the confidence with which one data set can be compared to another data set.

It is the responsibility of the field team to collect representative and complete samples. It is the responsibility of the analytical laboratory to analyze these samples using accepted protocols resulting in data that meet PARCC standards.

The categories of data quality to be utilized during the RI at the Site are consistent with those outlined in DER-10 and the USEPA Guidance document entitled *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, dated October 1988, and are described below.

- DQO Level 1 - Field Screening Utilizing Portable Instrumentation: Data used for site health and safety monitoring and field screening during site characterization activities. The data generally determines the presence or absence of certain constituents and is generally qualitative rather than quantitative. Field screening data provides the lowest data quality.
- DQO Level 2 - Field Laboratory Analysis: Data used for field screening during site characterization activities, evaluation of remedial alternatives, engineering design and monitoring during implementation of alternatives. The data generally determines levels of certain constituents relative to a calibration standard and is generally qualitative or quantitative.
- DQO Level 3 – Geologic/Engineering Level Data: Data used for site characterization, risk assessment, evaluation of alternatives, engineering design and monitoring during implementation of alternatives. The data is quantitative and is generated using EPA analytical laboratory procedures; however, it does not include full Contract Laboratory Protocol (CLP) documentation.
- DQO Level 4 - Laboratory Analysis: Data used for risk assessment, evaluation of alternatives and engineering design. The data is quantitative and is generated using EPA analytical laboratory procedures. All analyses require full Analytical Services Protocol (ASP)/CLP analytical protocols including Data Usability Summary Reports (DUSR). The majority of the data generated during the RI will be DQO Level 4.

- DQO Level 5 – Non-Standard Special Analytical Services: Data for use when analysis by non-standard procedures is required to obtain specific or lower detection limits or analyses are not of a nature typically performed under the CLP Routine Analytical Service (RAS) Program.

DQOs have been developed for the tasks outlined in Section 5 of the RI Work Plan. The DQOs are designed to support remedial alternative selection and risk assessment tasks associated with the Remedial Alternatives Analyses and remedial selection and design process. It is anticipated that DQO Levels 1 and 4 will primarily be utilized during the SI.

DQO Level 1 data (field screening) will be generated during site characterization activities including: head space screening of soil samples; health and safety monitoring; screening of test pits and soil borings; and collection of groundwater parameters.

DQO Level 4 data (laboratory analysis by CLP/ASP Methods) will be the primary objectives for the RI.

DQO Level 2 data (field analysis), DQO Level 3 data (engineering) and DQO Level 5 (non-standard) data are not expected to be generated as part of the initial RI activities. However, these data at these DQO levels may be generated during supplemental activities, if required.

3.2 FIELD SAMPLING QUALITY OBJECTIVES

The objectives with respect to field sampling activities are to maximize the confidence in the data in terms of PARCC. Field Internal Quality Control Checks will be utilized during this investigation through the use of field duplicates as presented below.

Field Duplicates – At a minimum, one of every twenty samples collected in the field will be accompanied by a duplicate sample. The duplicate will be prepared by homogenizing

the sample and preparing two identical sample aliquots for analysis (grab samples will be used for VOC analysis). The duplicate sample will be assigned a fictitious sample number, which will be recorded in the field notebook. Analysis of duplicate samples will determine the precision of the analytical techniques.

Precision will be calculated as relative percent difference (RPD) if there are only two analytical points, and percent relative standard deviation (%RSD) if there are more than two analytical points. Through the submission of field QC samples, the distinction may be made between analytical problems, sampling technique considerations, and sample matrix variability. This distinction will be made by the data reviewer based on industry guidelines and personal judgment.

To assure representativeness, a field sampling plan has been devised that estimates the number of samples to be collected. This plan is presented in the project Sampling and Analysis Plan (SAP). The data quality objective for the completeness of all data to be collected during the investigation is 100%. In other words, the objective is to collect samples from all of the locations noted in the SAP (Attachment 2 to the RI Work Plan). In the event 100% is not obtained due to inaccessibility of sampling points or other field conditions, the effect that the missing data will have on project objectives will be evaluated. If necessary, corrective action will be initiated to resolve any data gaps that develop as a result of less than 100% data completeness. Every effort will be made to obtain valid data for all sampling points, particularly those identified by the Site Manager as critical points. In this regard, the sampling points identified as critical will be selected for QC sampling (duplicate sample collection) at the frequency specified.

In order to establish a degree of comparability, such that observations and conclusions can be directly compared with all historical data, standardized methods of field analysis, sample collection, holding times, sample preservation and standard units of measurement for data will be used. In addition, field conditions will be documented and considered when evaluating data to determine the effects of sample characteristics on analytical

results. Whenever possible, the same sampling team will obtain all samples to reduce inconsistencies which may be caused by technique and time variables.

3.3 LABORATORY DATA QUALITY OBJECTIVES

The laboratory will demonstrate analytical precision and accuracy by the analysis of laboratory duplicates and by adherence to accepted manufacture and procedural methodologies.

The performance of the laboratory will be evaluated by the Project Manager and Project Quality Assurance Officer during data reduction. The evaluation will include a review of all deliverables for completeness and accuracy when applicable.

4.0 QUALITY CONTROL PROCEDURES

This section presents a general overview of the quality assurance and quality control procedures that will be implemented during the investigation. These quality control procedures are to be implemented as follows:

- at the factory for certain manufactured products;
- in the field; and
- in the laboratory utilized for selected sample analyses.

4.1 SAMPLING ACTIVITIES

Sampling and analysis will be conducted to characterize the Site. General field sampling procedures are described in Appendix A of the SAP. Samples will be handled by all field and laboratory personnel in a manner which allows for custody tracking and maintenance of the validity of the samples. Sample custody procedures are presented as Appendix A of this QAPP.

All sampling equipment, field measuring equipment and heavy equipment will be decontaminated according to the decontamination procedures presented in Appendix B of this QAPP.

All field activities will be documented in accordance with Appendix C of this QAPP.

5.0 CALIBRATION PROCEDURES

Laboratory calibration and frequency for specific analytical methods and pieces of equipment are specified in USEPA SW846 and the laboratory's Standard Operating Procedures.

During the course of this investigation, soil samples may be screened with a photoionization detector (PID) in the field. A maintenance, calibration, and operation program will be implemented to ensure that routine calibration and maintenance is performed on all field instruments. The O&M program will be monitored by the Site Manager. Trained team members will perform scheduled calibration, field calibrations, checks, and instrument maintenance prior to use each day. Additionally, calibration will be checked as necessary to ascertain that proper measurements are being taken.

Team members are familiar with the field calibration, operation, and maintenance of the equipment, and will perform the prescribed field operating procedures outlined in the operation and field manuals accompanying the respective instrument. Field personnel will keep records of all field instruments calibrations and field checks in the field logbooks. Calibration information recorded in field logbooks will include date, time, instrument model and serial number, a description of calibration or field check procedure, and any instrument deviations.

If on-site monitoring equipment should fail, the Site Manager will be contacted immediately. Replacement equipment will be provided or the malfunction will be repaired in a timely fashion.

6.0 ANALYTICAL PROCEDURES AND DATA EVALUATION

RI activities will include sample collection and analysis for some or all of the following analytes: TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270), TAL metals (Method 6010/7470 for mercury/9010 for cyanide), PCBs (Method 8082), Pesticides (Method 8081), PFASs (PFOA and PFOS by EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM). Soil, groundwater, and waste materials will be sampled as part of this RI. In general, laboratory analytical procedures will adhere to USEPA SW-846 third addition methodologies as appropriate. Samples will be analyzed by a laboratory that is a NYSDOH ELAP certified laboratory.

A summary of the sampling program and analytical methods are shown in Table 6-1.

Upon receipt of analytical reports from the laboratory, the data packages will be evaluated to confirm that samples were analyzed within required holding time and at proper detection limits. Data validation will be conducted for all samples analyzed in accordance with ASP methodologies and a Data Usability Summary Report (DUSR) will be prepared by a qualified independent third party. The laboratory will provide ASP 2000 category B QA/QC backup data packages as described in the most current DEC Analytical Services Protocol (ASP) with all analytical reports. These packages will be reviewed for completeness and provided upon request. Data deliverables will comply with the requirements of *DER-10 Appendix 2B: Guidance for Data Deliverables and the Development of Data Usability Summary Reports.* As such, electronic data deliverable submissions (EDDS) will be submitted.

Table 6-1
RI Sampling Program
HMQ 1890, LLC BCP

Task	Matrix	VOCs EPA Method 8260	SVOCs EPA Method 8270	TAL Metals EPA Method 6010*	Pest./ PCBs EPA Method 8081/ 8082	TCLP RCRA Metals EPA Method 6010*	TCLP Pest./ Herb. EPA Method 8081/8151	PFAS (PFOA and PFOS) EPA Method Mod-537.1	1,4-Dioxane EPA Method 8270***
Soil Samples									
Soil Borings	Soil	6	6	36	4			18	4
Borings for Wells	Soil	5	5	5					
Concrete	Soil			10	4				
Wood Floor	Soil				6				
Surface Soil	Soil		4	4	4			2	
Duplicates (1 per 20)	Soil	1	1	3	1			1	1
MS/MSD (1 set/20)	Soil	2	2	6	2			2	2
Total Soil Samples	Soil	14	18	64	21			23	7
Groundwater Samples									
New Well Points	Water	5	5	5				3	3
Existing Wells	Water	7	7	7				3	3
Duplicates (1 per 20)	Water	1	1	1				1	1
MS/MSD (1 set/20)	Water	2	2	2				2	2
Trip Blank	Water	1							
Equipment Blank								1	1
Total Water Samples	Water	16	15	15				10	10
Waste Characterization Samples									
As needed	liquid	TBD**	TBD**		TBD	TBD	TBD		

Notes:

Soils samples from borings and wood floor samples will not be analyzed for Pesticides.
The method quantification limits will be the lowest as required by the method.
The actual detection limit will be dependent upon the sample matrix.
Holding times, sample preservatives and sample containers will be specified by the analytical method.
Waste characterization samples are not subject to duplicate and MS/MSD requirements.
The number of waste characterization samples will be determined based on field observations.
*The analytical method for mercury is 7470. The analytical method for cyanide is 9010.
**VOCs/SVOCs for waste characterization will utilize TCLP extraction.
*** For aqueous samples, method will be EPA Method 8270 SIM.

Waste characterization samples will be collected if waste and/or affected soil are removed during the RI. Waste characterization samples may also be analyzed for reactivity, corrosivity and ignitability as required by the accepting facility. Waste characterization samples will not require data validation.

NOTE: PFAS analyses will comply with NYSDEC Guidance "Sampling, Analyses and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, June 2021"

The project Quality Assurance/Quality Control (QA/QC) officer will review the data packages to confirm completeness of the ASP Category B deliverables and to prepare a DUSR in accordance with NYSDEC guidelines. The QA/QC officer will be independent from the analytical laboratory. At a minimum, the following information will be evaluated:

- chain-of-custody forms;
- date sampled/date analyzed;
- sample temperature at check-in;
- raw data;
- initial and continuing instrument calibrations;
- matrix spikes;
- laboratory duplicate analyses;
- surrogate recoveries (organics); and
- laboratory control samples (inorganics).

The DUSR will comply with the requirements of *DER-10 Appendix 2B: Guidance for Data Deliverables and the Development of Data Usability Summary Reports.*

Data reduction will consist of presenting analytical results on summary tables. Data resulting from investigation analyses will then be used to characterize the various environmental media at the Site and to define the extent of any impacted medium.

7.0 PROJECT PERSONNEL

The RI Work Plan and associated documents were prepared by, and will be implemented by, a project team from Ambient Environmental, Inc. (Ambient) with extensive experience in site investigation, risk evaluation, alternative analyses, and remediation. The project team will be responsible for implementation of the RI Work Plan. Key personnel to be assigned to this project, and their project role, will be provided prior to the start of work; professional profiles for these persons will also be provided prior to the start of work.

The laboratory analytical contractor will be a NYSDOH-certified laboratory with ASP/CLP experience to be selected upon completion and approval of the RI Work Plan. All data validation and DUSR preparation will be performed by a qualified independent third-party data validator. Site contractors will be selected upon completion and approval of the RI Work Plan.

8.0 SCHEDULE

The estimated work schedule is presented in Section 6.0 of the RI Work Plan document. A start date will be established based on finalization of the Work Plan.

APPENDIX A

SAMPLE CUSTODY PROCEDURES

SAMPLE CUSTODY PROCEDURES

The primary objective of the sample custody procedures is to create an accurate written record which can be used to trace the possession and handling of all samples from the moment of their collection, through analysis, until their final disposition. For the purpose of this document, the USEPA Office of Enforcement and Compliance Monitoring, National Enforcement Investigation Center (NEIC) Policies and Procedures (May 1986) definition of custody applies. USEPA states that a sample is under custody if:

1. It is in one's possession, or
2. It is in one's view, after being in one's possession, or
3. It is locked up after being in one's possession, or
4. It is in a designated secure area.

The Site Manager or the field personnel collecting the samples will maintain custody for samples collected during this investigation. The Site Manager or field personnel are responsible for documenting each sample transfer and maintaining custody of all samples until they are shipped to the laboratory.

A self-adhesive sample label will be affixed to each container before sample collection. These labels will be covered with clear waterproof tape if necessary to protect the label from water or solvents. The sample label will contain the following information:

- Laboratory Name
- Sample ID Number
- Sample Location
- Sample Matrix
- Date and Time of Sample Collection
- Designation as grab or composite
- Parameters to be tested
- Preservative Added
- Name of Sampler.

All sampling containers will be supplied by the laboratory and are to be cleaned by the bottle supplier in accordance with standard laboratory procedures. Analytical proof of cleanliness will be available for review. Sample containers will be enclosed in clear plastic bags and packed with cushioning material inside the coolers.

The Site Manager will maintain custody of the sample bottles. Sample bottles needed for a specific sampling task will be properly preserved in the laboratory prior to sample collection. After the Site Manager has verified the integrity of the bottles and that the proper bottles have been assigned for the task, the bottles will be relinquished to the sampling team. The sampler will place a sufficient volume of sample in the appropriate laboratory-grade bottles for use as sample containers. Care will be taken to not overfill the bottles during sample collection, thereby ensuring proper sample preservation.

The samples collected for analyses will be stored in an insulated cooler for shipment to the laboratory. The laboratory should receive the samples within 48 hours of sampling. Field chain-of-custody records completed at the time of sample collection will be placed inside the cooler for shipment to the laboratory. These record forms will be sealed in a zip-lock type plastic bag to protect them against moisture. Each cooler will contain sufficient ice or cold packs to ensure that an approximate 4^0C temperature is maintained and will be packed in a manner to prevent damage to sample containers. Sample coolers will be sealed with strapping tape and the Site Manager will sign and date a custody seal and place it on the cooler in such a way that any tampering during shipment will be detected.

All coolers will be shipped by an overnight courier according to current US DOT regulations. Upon receiving the samples, the sample custodian at the laboratory will inspect the condition of the samples, compare the information on the sample labels against the field chain-of-custody record, assign a laboratory control number, and log the control number into the computer sample inventory system. The sample custodian will then store the sample in a secure sample storage cooler maintained at approximately 4°C and maintain custody until the sample is assigned to an analyst for analysis. Custody will be maintained until disposal of the analyzed samples.

The sample custodian will note any damaged sample vials, void space within the vials, or discrepancies between the sample label and information on the field chain-of-custody record when logging the sample. This information will also be communicated to field personnel so proper action can be taken. The chain-of-custody form will be signed by both the relinquishing and receiving parties and the reason for transfer indicated each time the sample custody changes.

An internal chain-of-custody form will be used by the laboratory to document sample possession from laboratory sample custodian to analysts and final disposition. All chain-of-custody information will be supplied with the data packages for inclusion in the document control file.

APPENDIX B

DECONTAMINATION PROCEDURES

DECONTAMINATION PROCEDURES

1.0 INTRODUCTION

Decontamination of all field investigation and sampling equipment will follow the decontamination procedures detailed below.

Equipment cleaning areas will generally be established within or adjacent to the specific work area. The equipment cleaning procedures described below include pre-field, field and post-field cleaning of sampling equipment. The equipment consists of soil sampling equipment. The non-disposable equipment will be cleaned after completing each sampling event. All rinse water will be contained and treated on site or sent to an approved disposal facility. The site manager will monitor cleaning procedures.

Solids (e.g., disposable gloves, disposable clothing, and other disposable equipment) generated from personnel cleaning procedures will be collected for proper disposal. Decontamination procedures will be fully documented in the field notebook.

2.0 SAMPLING EQUIPMENT DECONTAMINATION

Typical sampling equipment cleaning materials may include:

- phosphate-free detergent solution soap;
- potable water (which will be obtained from a treated municipal water source);
- appropriate cleaning solvent (e.g., dilute nitric acid or methanol);
- wash basins;
- brushes;
- polyethylene sheeting;
- aluminum foil;
- large heavy-duty garbage bags;
- spray bottles;

- zip-lock type bags;
- paper towels/Handiwipes®; and
- non-phthalate, latex, disposable gloves.

All sampling equipment will be stored in a clean environment and, where appropriate, the equipment will be covered in aluminum foil.

Field decontamination procedures, as described below, will include the establishment of cleaning stations. These stations will be located away from the immediate work area so as not to adversely impact the cleaning procedure, but close enough to the sampling teams to keep equipment handling to a minimum.

All equipment such as drill rigs and excavation equipment will be inspected to determine if an initial cleaning at this location prior to use on-site is needed. The frequency of subsequent on-site cleaning will depend on actual equipment use in the collection of environmental samples or during remedial activities. Cleaning will occur at the sampling location after all samples are collected. All fluids and residues produced from the decontamination procedures will be discharged at the cleaning location so as not transfer materials from one location to another.

All sampling equipment (e.g. hand-operated coring devices, knives, hand-augers, bowls) will be cleaned before each use and prior to leaving the site. The field sampling equipment-cleaning procedure when analyzing for organic constituents is as follows:

- Phosphate-free detergent solution;
- Potable water rinse;
- Deionized water rinse;
- Repeat water rinse twice (i.e., triple rinse) and allow to air dry; and
- Wrap equipment completely with aluminum foil to prevent contact with other materials during storage and/or transport to the sampling location.

The initial step, a soap and water wash, is to remove all visible particulate matter and residual oils and grease (this may be preceded by a steam cleaning to facilitate residuals

removal). When analyzing for organic constituents when tools appear heavily contaminated, this may be followed by a potable water rinse to remove the detergent and a rinse sequence of methanol and deionized water.

All heavy equipment (drill rigs, excavator, etc.) will be washed prior to onsite usage, between locations if the equipment comes in direct contact with contaminated media, and prior to leaving the site. All down-hole equipment (sampling tubes and buckets) will be washed between uses at each location. Equipment will be scrubbed manually as needed to remove heavy soils prior to steam cleaning. Clean equipment will be stored in an in-active work area on-site until use.

3.0 METER AND FILTER DECONTAMINATION

All meters and probes used in the field will be decontaminated between uses with deionized water (triple rinse).

Filtering apparatus will be cleaned prior to each use by washing with a phosphate-free detergent solution, rinsing with potable water and a final rinse with deionized water. Used filters will be properly disposed following sample collection.

Sampling equipment and probes will be decontaminated in an area covered by polyethylene sheeting near the sampling location.

APPENDIX C

FIELD DOCUMENTATION

FIELD DOCUMENTATION

All the field data, such as those generated during field measurements, observations and field instrument calibrations, will be entered directly into a bound field notebook. Each project team member will be responsible for proofing all data transfers made, and the Site Manager will proof at least ten percent of all data transfers.

One or more bound field notebooks may be maintained for the Site; each book will be consecutively numbered. The book(s) will remain with the Site file.

All entries in the Logbook will be made in ink. Logbook entries will include but not be limited to the following:

First Page:

- site name and number
- date and time started
- personnel on-site

Subsequent Pages:

- detailed description of investigative activities including sampling, on-site meetings and any problems encountered along with the duration of these activities
- documentation of all personnel monitoring results (e.g. PID readings)
- list of all samples obtained and sample appearance (referenced to field logs if necessary)
- list of personal protection used and documentation procedure
- all other pertinent daily activities

Each new day will contain:

- date and time started
- weather
- personnel on-site
- activity information
- initials of notekeeper

*Note: When a mistake is made in the log, it will be crossed out with a single ink line and will be initialed and dated.

Special care will be taken in the description and documentation of sampling procedures. Sampling information to be documented in the field notebook and/or associated forms are as follows:

- sample number
- date and time sample collected
- source of sample (Area, monitoring well number, etc.)
- location of sample - document with a site sketch and/or written description of the sampling location so that accurate resampling can be conducted if necessary
- sampling equipment (trowel, split spoon, sediment corer, etc.)
- analysis and QA/QC required
- chemical preservative used (HCl, HNO_3, H_2SO_4, NaOH, etc.)
- field instrument calibration including date of calibration, standards used and their source, results of calibration and any corrective actions taken.
- field data (pH, temperature, conductivity, etc.)
- field observations - all significant observations will be documented.
- sample condition (color, odor, etc.)
- site condition (stressed vegetation, exposure of buried wastes, erosion problems, etc.)
- sample shipping procedure, date, time, destination and if container seals were attached to transport container(s)

- comments - any observation or event that occurred that would be relevant to the facility; for example: weather changes and effect on sampling, conversations with the client, public official or private citizen; and instrument calibration, equipment problems, and field changes.

ATTACHMENT 4

HEALTH AND SAFETY PLAN

HMQ 1890, LLC

HEALTH & SAFETY PLAN
HMQ SITE RESTORATION AND STEAM CENTER
220 North Prospect Street, Herkimer, New York

BCP Site No.: C622024

14 October 2022

REVISED 25 July 2023

Prepared for:

HMQ 1890, LLC
P.O Box 13
Herkimer, NY 13350

Prepared by:

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Albany, NY 12203

Ambient Project No. 210818ENVA

HEALTH AND SAFETY PLAN

PREPARED BY:

APPROVED BY:

_____ Date:_____

Mark Dugas, Health and Safety Officer

_____ Date:_____

Jim Blasting, Project Manager

_____ Date:_____

Luke McKenney, Site Manager

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1.0 INTRODUCTION

This document represents the Health and Safety Plan (HASP), which is Attachment 4 of the Remedial Investigation (RI) Work Plan for the HMQ Site Restoration and STEAM Center Brownfield Cleanup Program (BCP) site on North Prospect Street in the Village of Herkimer(hereinafter the "Site").

This HASP summarizes the intended field activities at the Site and chemicals of concern expected to be present. The HASP then describes the procedures to be followed in conducting the field operations, given the existing data concerning the Site.

2.0 FIELD ACTIVITIES AND CHEMICALS OF CONCERN

The field activities to be conducted are described in the associated Sampling and Analysis Plan (SAP). Planned Site activities include advancing soil borings, constructing temporary well points, and multi-media sampling. Site activities are planned for the fall of 2021.

Preliminary Site Investigation activities performed at the Site identified metals as the primary chemicals of concern, with the potential for Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) as secondary chemicals of concern.

Principal metals of concern include lead, cadmium, chromium, copper and nickel. Arsenic and cyanide were also detected at concentrations that warrant evaluation.

A summary of the specific compounds, the concentrations, and the corresponding matrices are presented in Attachment 1 of the SI Work Plan.

3.0 POTENTIAL CHEMICAL AND PHYSICAL HAZARDS

Metals are the primary contaminant of concern at this Site; VOCs and SVOCs have also been detected. Since the field activities involve subsurface disturbance, inhalation (volatiles and dust particles), dermal contact and ingestion are considered the potential pathways of concern.

A **dust/particulate Action Limit of 100 mg/m3** has been established for site activities. Measurement for dust/particulate shall be conducted near a worker's breathing zone with particulate direct reading instrumentation.

A **VOCs Action Limit of 5 ppm** is established for the inhalation pathway. The 20-ppm limit is based on measurement by a PID or similar direct reading instrument near the breathing zone of workers. The VOC Action Limit is based on the VOCs identified and their respective concentrations in the soil and water matrices identified during site characterization investigation.

These Action Limits are based on the compounds and their respective concentrations in the soil and water matrices identified during the preliminary site investigation. The SSO, project manager or project health professional may change these limits when warranted. Any changes in Action Limits must be clearly documented in field notes.

To address potential dermal contact & ingestion, a **"No Skin Contact Policy"** will also be followed for all site activities. This policy requires that there shall be no direct skin contact with any soils, sediments or water including items or equipment that may have contacted soils, sediments or water unless they have been properly decontaminated. Gloves and other protective equipment (pants, long sleeve shirts, etc.), based on specific activities, shall be worn whenever there is a potential for contact or contamination. Additionally, no potentially contaminated or soiled items, PPE, or footwear shall be taken off site unless properly decontaminated. It is anticipated that rubber over boots or disposable shoe covers will be worn by all on-site personnel within established exclusion

and contamination reduction zones. This policy may be modified at the discretion of the SSO, project manager or project health professional. Any changes in the policy must be clearly documented in field notes.

Physical hazards may also be encountered at the Site, especially during drilling and excavation activities. Table 3-1 lists potential physical hazards that may be encountered during the field activities. This list has been compiled based on planned activities and potential site conditions.

Table 3-1
Physical Safety Concerns
HMQ BCP Site, 220 North Prospect Stret, Herkimer, NY

Hazard	Description	Location	Procedures Used to Monitor/Reduce Hazard
Underground Utilities	Electric, Gas, Sanitary and Storm Sewer	Throughout	Verify number and location of all utilities prior to site operations.
Heat Stress	Hot Weather Activities	Throughout	Protections and monitoring as designated in this HASP
Cold Weather	Frost-bite, Hypothermia	Throughout	Wear appropriate clothing. Provide warm shelter area and liquids. Monitor worker physical conditions.
Heavy Equipment	Drill Rig and Excavator	Select Areas	All personnel should be cautious around heavy equipment. Make eye contact with operator prior to entering the work area.
Weather	Lightning, Heavy Rain or Snow	Throughout	During lightning, cease all heavy equipment activities. During cold weather, beware of wet and slippery conditions.
Noise	Heavy Equipment	Select Areas	Use appropriate earplugs or earmuffs, during equipment operation.
Overhead Electrical Equipment	Overhead Lines	Select Areas with Heavy Equipment	Maintain at least ten feet of clearance from any overhead lines.
Struck by Vehicle	Work in Traffic Areas	Parking Lots	Block all work areas off with reflective cones.

4.0 HAZARDS EVALUATION

Details pertaining to site activities are outlined in the RI Work Plan and associated SAP.

4.1 SITE MONITORING FOR CHEMICAL HAZARDS

The primary compounds of concern in the work areas are VOCs and SVOCs. Air monitoring (where applicable) and good work practices will be used during the field activities to ensure that appropriate personal protection is used and to minimize potential exposure. Appropriate monitoring equipment to be used during site activities is described herein. All field monitoring will be conducted by or under the supervision of the Site Safety Officer (SSO). The SSO will properly maintain and calibrate all monitoring instruments throughout the field activities to ensure their accuracy and reliability. The SSO will keep a written record of all calibration activities.

4.1.1 VOC Monitoring

Direct reading instrumentation for VOCs shall be used to monitor exposure potentials during activities involving potentially contaminated soil and water, as determined necessary by the SSO. Direct reading instrumentation, such as a photoionization detector (PID) detector will be utilized. Based on the exposure levels in the breathing zone of personnel, the SSO will determine if an upgrade in respiratory protection is warranted. These upgrade levels are presented in the following table.

Table 4-1
Personal Protection Action Levels – VOCs
HMQ BCP Site, 220 North Prospect Stret, Herkimer, NY

Total Concentration	Required Action and/or Personal Protection
Monitor during all operations with the potential to release VOCs*	
VOC: Detection Limit to 20 ppm	Level D personal protection
20 ppm to 50 ppm	Upgrade to Level C personal protection with full-face air purifying respirators with combination P100/Organic Vapor cartridges. Change cartridges after each daily use.
Over 50 ppm	Notify the Site Safety Officer for Level B provisions or implement means to control exposure levels.
	*All concentrations are sustained- in the breathing zone

4.1.2 Dust Monitoring

Dust or particulate may be generated during activities at the Site. It will be at the discretion of the SSO to determine the need for formal dust monitoring during Site activities. Generally speaking, if continuous visible dust is being generated and is present in the employee work area, formal monitoring will be conducted. Monitoring will be conducted with a direct-reading dust monitor. ***The action level for dust/particulate will be 5 mg/m^3*** (Note: based on P10 detection limits). If this level is exceeded, a filter device provided by or in accordance with the manufacturer recommendations will be utilized for field screening equipment, controls will be implemented to minimize dust exposure and/or employees will utilize Level C respiratory protection.

4.2 PHYSICAL HAZARDS

To minimize hazards, standard safety procedures will be followed at all times. The primary physical safety hazards for this project include, but are not limited to:

- common slip, trip, and fall hazards;
- overhead and buried hazards;
- drill rig and heavy equipment operation;
- excavation safety;
- electrical and power equipment;
- vehicular traffic;
- lifting excessive weights;
- sampling hazards;
- excessive noise levels;
- heat and cold stress; and
- other hazards.

4.2.1 Common Slip, Trip, Fall Hazards

Personnel should be aware of common slip, trip or fall hazards that are encountered frequently in industrial and project environments. Heightened awareness and emphasis on good housekeeping are the most effective ways to prevent accidents.

4.2.2 Overhead and Buried Hazards

Utility lines, both above and below ground, may pose a safety hazard for site personnel during soil boring or other heavy equipment operations. If overhead utilities have been identified on site as a hazard, the equipment operator must maintain a safe clearance between the lines and the equipment at all times during work operations. High voltage lines require greater clearance distances. As a safe work practice, equipment operators will maintain a 10-foot clearance between equipment and power lines or other energized sources unless the source is greater than 350 KV, in which case 29CFR 1910.180(j) must be applied. The location of buried utilities lines must be determined prior to the start of work activities. Overhead and buried utility and electrical lines may be a concern during all activities. These concerns will be addressed as part of the daily safety meeting.

4.2.3 Drill Rig and Heavy Equipment Operation

Truck-mounted drill rigs and heavy equipment presents multiple hazards while in operation. Excessive noise, boom raising, lowering and swing, cable and hook damage and operator error may result in injuries. To minimize potential accidents, the following safety measures will be required for all operations:

- All operators of equipment used on site will be familiar with the requirement for inspection and operation of such equipment. The operator will be required to demonstrate proficiency in safe operation of the equipment.
- All drilling and excavation shall be performed from a stable ground position, if unable to locate on level ground, the drill rig shall be appropriately checked, blocked and braced prior to the derrick being raised.
- Daily inspections of the drilling or excavation area shall be made by a person competent in heavy equipment safety. The inspector shall note the safety of the area and confirm the location of utilities.
- Before drilling or excavation, the existence and location of utility lines (electric and gas) will be determined by the Site owner. If the knowledge is not available, an appropriate device, such as a cable avoiding tool, will be used to locate the services line(s).
- If drilling equipment is located in the vicinity of overhead power lines, a distance of ten-feet must be maintained between the lines and any point on the equipment.
- Daily inspection of the drill rig and heavy machinery must be conducted and documented by the operator prior to each day's operation.
- In the event repairs to the drilling rig derrick are required, personnel climbing the derrick to affect such repairs must wear restraint system, including full body harness and lifeline, to prevent an accidental fall.

4.2.4 Excavation Safety

This task involves removing earthen materials from a designated area, thereby creating a man-made cut, trench, or depression in the earth's surface.

Physical Hazards: The physical hazards involved in the excavation of soils are related to the excavation itself and the operation of heavy equipment. The presence of overhead utilities such as power lines requires careful positioning of the excavating equipment in order to maintain a safe distance between the lines and the closest part of the equipment. The presence of underground utilities such as gas lines, power lines, water lines and sewer pipes must be determined prior to beginning the excavation.

Excavations pose significant hazards to employees if they are not carefully controlled. There exists a chance for the excavation to collapse if it is not dug properly, sloped, benched or shored as required by 29 CFR 1926 Subpart P. Protective systems, as required by 29 CFR 1926 Subpart P, must be utilized if the potential for hazardous cave-ins exist. The excavation also is a fall hazard, and employees must pay careful attention to what they are doing or they risk a fall into the excavation. Fall protection, as required by 29 CFR 1926 Subpart M, may be required.

No activities will require personnel to enter an excavation. No employees are permitted to enter any excavation. Equipment placement and other activities shall be done remotely, without entering the excavation.

Control

Before any digging can be done, all underground utilities must be located and identified. The underground utilities will be located and identified by contacting Dig Safely New York, reviewing available drawings showing locations of on-site underground utilities, and by contacting the appropriate client representative to mark the location of underground utilities. The Site Manager will meet with utility locators on site prior to

marking out the underground utilities. During the on-site meeting, the Site Manager will provide the utility locator with a site figure, which shows the locations where excavation activities will be completed during site activities. The Site Manager will conduct a site walkover with utility locators, as necessary, to visually identify each location where excavation activities are to be completed during activities (as shown on the site figure to be provided to the locators).

General Requirements

No person shall be permitted underneath loads handled by lifting or digging equipment. Site personnel must be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means must be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person.

Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning must be provided to ensure the stability of such structures for the protection of employees. Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees is not permitted except when:

- A support system designed by a competent person, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or

- The excavation is in stable rock; or
- A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or
- A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

Sidewalks, pavement and appurtenant structures must not be undermined unless a support system or another method of protection is provided to protect from the possible collapse of such structures. Adequate protection must be provided to protect from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection must consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

Employees must be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection must be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

Inspections by Competent Person

Daily inspections of excavations, the adjacent areas, and protective systems must be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection must be conducted by the competent person prior to the start of work and as needed throughout the shift.

Inspections also must be made after every rainstorm or other hazard-increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated. Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees must be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

Walkways must be provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with 1926.502(b) must be provided where walkways are 4 feet (1.2 m) or more above lower levels. Adequate barrier protection must be provided at all remotely located excavations. All wells, pits, shafts, etc., must be barricaded or covered. Upon completion of exploration and other similar operations, temporary wells, pits, shafts, etc., must be backfilled.

4.2.5 Tools - Hand and Power

Hand and power tools may be utilized as part of this investigation. All tools used during field activities will conform to the standards set both in OSHA 29CFR-1926.300 - 1926.305. To minimize the potential for any safety related accidents, the following measures will be required:

- All hand and power tools shall be maintained in a safe condition;
- Power operated tools shall be equipped with protective guard when in use;
- All hand-held power tools shall be equipped with a constant pressure switch that will shut off the power when the pressure is released;
- Hand tools shall be kept free of splinters or cracks;
- Electrical power tools shall have double-insulated type grounding;
- Electrical tools used in wet environments should have ground fault circuit interrupters (GFCI) in place;
- Electrical cords are not permitted for hoisting or lowering tools;
- All fuel powered tools shall be stopped while being refueled or maintained; and,

- When fuel powered tools are used in enclosed spaces the ambient air will be measured for oxygen and toxic gases.

4.2.6 Vehicular Traffic

Vehicular traffic in and around the facility may pose a hazard to project personnel. Precaution, including reflector vests and cones, should be taken when fieldwork is occurring near traveled areas.

4.2.7 Lifting Excessive Weights

Personnel should exercise caution when lifting any object that weighs greater than 50 pounds. For objects which weigh less than 50 pounds, proper lifting technique is essential to minimize the potential for injury. No excessively bulky objects should be lifted without assistance.

4.2.8 Sampling Hazards

Field activities will consist of collecting soil and water samples for analysis and evaluation. The hazards of this operation are primarily associated with the sample collection methods and procedures utilized.

The SAP outlines the standard methods and procedures that will be utilized for sampling activities. Of these specific procedures, none present hazards that are unique to sampling. Potential hazards that may be encountered are described in other sections of the HASP.

4.2.9 Excessive Noise Levels

Noise generated by heavy equipment may present a hazard during site operations. Excessive noise can physically damage the ear, hinder communications and startle or annoy the workers. All on-site personnel will wear hearing protection (earplugs or

earmuffs) when working near heavy equipment and when noise levels may exceed 85dBA.

4.2.10 Heat Stress

Heat stress is the aggregate of environmental and physical work factors that make up the total heat load imposed on the body. The environmental factors of heat stress include air temperatures, humidity, radiant heat exchange, wind and water vapor pressure (related to humidity). Physical work adds to the total heat stress by producing metabolic heat in the body, proportional to the intensity of work.

Heavy physical labor can greatly increase the likelihood of heat fatigue, heat exhaustion and heatstroke, the latter being a life-threatening condition. Heat stress monitoring of personnel shall commence when the ambient temperature is 80°F (70°F if chemical protective clothing is worn) or above. Frequency of monitoring shall increase as the ambient temperature rises. Various control measures shall be employed if heat stress becomes a problem. These include:

- Provision for liquids to replace lost body fluids;
- Establishment of a work/rest schedule that allows for rest periods to cool down; and
- Training workers in the recognition and prevention of heat stress.

Specific steps to implement should ambient temperatures pose a hazard include:

- Site workers will be encouraged to drink plenty of water (or nutrient replacement drinks, such as Gatorade) throughout the day.
- On-site drinking water will be kept cool (50°-60°F) to encourage personnel to drink frequently;
- A work/rest schedule that will provide adequate rest periods for cooling down will be established as required;

- All personnel will be advised of the dangers and symptoms of heat stroke, heat exhaustion and heat cramps;
- Employees should be instructed to monitor themselves and co-workers for signs of heat stress and to take breaks as necessary;
- A shaded rest area must be provided. All breaks should take place in the shaded area;
- Employees shall not be assigned to other tasks during breaks;
- All employees shall be informed of the importance of adequate rest, acclimation and proper diet in the prevention of heat stress disorders; and
- The buddy system shall be practiced at all times on site.

The signs of heat stress disorders are described below.

Heat Cramps

Heat cramps are caused by heavy sweating and inadequate electrolyte replacement. Signs and symptoms include muscle spasms and pain in the hands, feet, and abdomen.

Heat Exhaustion

Heat exhaustion occurs from increased stress on various body organs, signs and symptoms include:

- Pale, cool, moist skin;
- Heavy sweating; and
- Dizziness, nausea, fainting.

Heat Stroke

Heat stroke is the most serious form of heat stress and should always be treated as a medical emergency. The body's temperature regulation system fails and the body

temperature rapidly rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Signs and symptoms of heat stroke include:

- Red, hot, unusually dry skin;
- Lack of, or reduced, perspiration;
- Nausea;
- Dizziness and confusion;
- Strong, rapid pulse and confusion; and,
- Coma.

4.2.11 Cold Stress

Cold and/or wet environmental conditions can place workers at risk of cold related illness. Hypothermia can occur whenever temperatures are below 45°F. It is most common during wet windy conditions, with temperatures between 40° to 30°F. The principal cause of hypothermia in these conditions is loss of insulating properties of clothing due to moisture, coupled with heat loss due to wind and evaporation of moisture on the skin.

Frostbite, the other hazard associated with exposure to the cold, is the freezing of body tissue, which ranges from superficial freezing of surface skin layers to deep freezing of underlying tissue. Frostbite will only occur when ambient temperatures are below 32°F. The risk of frostbite increases as the temperature drops and the wind speed increases. Most cold-related worker fatalities have resulted from failure to escape low environmental temperatures or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is a fall in the deep core temperature of the body.

Site workers should be protected from exposure to cold so that the deep core temperature does not fall below 97°F. Lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision making or loss of consciousness with the

threat of fatal consequences. To prevent such occurrence the following measures are recommended:

- Site workers shall wear warm clothing, such as mittens, heavy socks, etc. when the air temperature is below 45°F. Protective clothing or coveralls may be used to shield employees from the wind;
- When the air temperature is below 35°F, clothing for warmth, in addition to chemical protective clothing will be worn by employees. This will include:
- Insulated suits, such as whole-body thermal underwear;
- Wool socks or polypropylene socks to keep moisture off the feet;
- Insulated gloves and boots;
- Insulated head cover such as hard hat winter liner or knit cap; and
- Insulated jacket with wind and water-resistant outer layer.

At air temperatures below 35°F the following work practices are recommended:

- If the clothing of a site worker might become wet on the job site, the outer layer of clothing should be water impermeable;
- If a site worker's underclothing becomes wet in any way, they should change into dry clothing immediately. If the clothing becomes wet from sweating (and the employee is not comfortable) the employee may finish the task at hand prior to changing into dry clothing;
- Site workers should be provided with a warm (65°F or above) break area;
- Hot liquids such as soups or warm drinks should be provided in the break area. The intake of coffee and tea should be limited, due to their circulatory and diuretic effects;
- The buddy system shall be practiced at all times on site. Any site worker observed with severe shivering shall leave the work area immediately; and
- Site workers should be dressed in layers, with thinner lighter clothing next to the body.

5.0 PERSONNEL RESPONSIBILITIES

A Health and Safety Management Team has been developed for the site investigation field activities. The following responsibilities will be assigned to designated project personnel for all activities.

The Site Manager will act in a supervisory capacity over all employees who participate in the field activities specified in this work plan. The Site Manager is responsible for ensuring that health and safety responsibilities are carried out in conjunction with the work plan. As part of these responsibilities, the Site Manager will distribute the HASP to all field team personnel and discuss the HASP prior to the start of field activities. All field personnel will sign the Health and Safety Plan Review Record shown in Figure 5-1, verifying that they have read and are familiar with the contents of this HASP.

The Site Safety Officer (SSO) will be responsible for oversight, implementation and compliance of applicable health and safety regulations on-site. The SSO has the following authority and responsibilities:

- responsibility for the field implementation, evaluation and any necessary field modifications of this HASP;
- responsibility for maintaining adequate supplies of all personal protective equipment, as well as calibration and maintenance of all HASP monitoring instruments;
- authority to suspend field activities due to imminent danger situations;
- responsibility to initiate emergency response activities;
- presentation and documentation of field safety briefings;
- maintain daily log of all on-site safety activities; and
- oversight of health and safety practices for subcontractors;
- The SSO shall conduct daily tailgate safety meetings with site personnel and contractors prior to commencement of each day's activities.

Figure 5-1
HASP Plan Review Record
220 North Prospect Street, Herkimer, NY

HEALTH AND SAFETY PLAN REVIEW RECORD

I have read the Health and Safety Plan for the Site and have been briefed on the nature, level and degree of exposure likely as a result of participation in this project. I agree to follow all the requirements in the Health and Safety Plan.

Employee Signature	Date
Name	
Site Manager Signature	Date
Name	

Subcontractors will be provided with a copy of this HASP and will be informed of health and safety concerns, as well as environmental monitoring data collected during field activities. This information will be shared with the subcontractors to assist them in implementing the appropriate health and safety measures. Contractors will be required to prepare and implement their own HASP that is at least as stringent as this project HASP. The consultant/contractor is not responsible for the health and safety of subcontractors or other site or facility personnel.

6.0 HEALTH AND SAFETY TRAINING

All personnel working at the Site will participate in daily safety briefings. The SSO will also conduct daily briefings with all site employees covering the activities and safety procedures. The daily briefings shall review the days planned activities and discuss potential hazards and proper controls to minimize hazards. The content of briefings and personnel present shall be documented in field notes.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 PURPOSE/APPROACH

A critical aspect of field crew safety is appropriate personal protective equipment (PPE). PPE refers to the types of footwear, headwear, eyewear, ear wear, coveralls, gloves and respiratory protection each individual will wear while performing a specific task(s) and exposed to a particular chemical(s) at a given concentration(s). The levels of PPE are referred to as Level D, Level C and Level B; with Level D requiring the least amount of PPE and Level B the most.

The SSO will decide when it is necessary to upgrade, downgrade or modify the existing level of protection based on field monitoring and action levels described in Section 4.0. The SSO will make entries in the health and safety field book detailing each days PPE, task and if the level of PPE is modified, the reason for each change. Each level's PPE requirements may be modified by the SSO as needed. The different levels of PPE and equipment required at each level are described in the following sections and is based on 29 CFR 1910.120.

7.2 LEVEL D PROTECTION

Minimum level of protection for any field activities.

Level D PPE will consist of the following:

- Coveralls or a work uniform affording protection for nuisance contamination.
- Steel-toe, steel-shank work boots.
  Safety glasses.
- Hard hat (if working around equipment or machinery).

Note: Hand washing is imperative following any contact with soil, water and waste.

Optional Equipment or as Required by the SSO

- Disposal Tyvek® or rubber outer boots.
  Chemical resistant gloves (recommend nitrile or neoprene).
  Disposable outer chemical coveralls, such as Tyvek®, poly coated Tyvek® or Saranex®.
- Hearing protection.

No site activities where there is potential for contacting soils, waste or water may be conducted without proper gloves and/or other PPE as necessary.

7.3 LEVEL C PROTECTION

Minimum level of protection when respirators are required.

Level C PPE will consist of:

- Full-face air purifying respirator (APR) equipped with appropriate P100 (HEPA equivalent) and/or organic vapor cartridges. Note: All personnel requiring respiratory protection must be medically approved and "fit-tested" with the respirator to be used. Appropriate powered air-purifying respirators (PAPR) may be utilized if specified by the SSO. Only with the approval of the SSO can half-mask air purifying respirators be donned. Chemical cartridges will be changed on a daily basis.
- Chemical-resistant clothing such as Tyvek®, poly-coated Tyvek® or Saranex®.
- Outer chemical-resistant (recommend nitrile or neoprene) gloves and inner latex surgical gloves. Outer gloves should be tapped to the clothing sleeve.
- Steel-toe, steel-shank work boots with Tyvek® or rubber boot coverings. Over boots should be taped to clothing leg.
- Hard hat (if working around equipment or machinery).

Optional Equipment as Required by the SSO

- Escape SCBA
- Hearing protection

7.4 LEVEL B PROTECTION

Level B PPE will consist of:

- Self-contained breathing apparatus (SCBA) in a pressure demand mode or supplied air with escape SCBA in the pressure demand mode.
- Chemical-resistant clothing such as Tyvek®, poly-coated Tyvek® or Saranex®.
- Outer chemical-resistant (recommend nitrile or neoprene) gloves and inner latex surgical gloves. Outer gloves should be tapped to the clothing sleeve.
- Steel-toe, steel-shank work boots with rubber over boots. Over boots should be taped to clothing leg.
- Hard hat (if working around equipment or machinery).

8.0 SITE OPERATION AREAS AND DECONTAMINATION

Site operation areas will be formally set up for all field activities. Personal decontamination procedures will be closely adhered to upon entering or leaving all work areas. Section 8.1 describes the three zones used to control site operation areas and Section 9.0 describes decontamination procedures.

8.1 SITE OPERATION AREAS

A three-zone control system will be used during activities as determined necessary by the SSO. The purpose of the zones is to control the flow of personnel to or from potentially contaminated work areas. Guidelines for establishing these zone/areas are as follows:

Exclusion Zone (EZ): Primary exclusion zones will be established around each field activity and, at a minimum, this zone will radiate to a distance of 25 feet from the point of operations. Appropriate personal protective equipment must be worn in this zone. This zone will be separated from the contaminant reduction zone by cones or barrier tape to prevent personnel from entering the exclusion zone boundary without appropriate protective equipment or leaving without proper decontamination.

Contaminant Reduction Zone (CRZ): The CRZ is the transition area between the EZ and the Support Zone (clean area). All personnel and equipment must be decontaminated in the CRZ upon exiting the EZ and before entering the Support Zone. The CRZ will be set up along the perimeter of the EZ at a point upwind of field activities.

Support Zone (SZ): The support zone is considered to be uncontaminated; as such, protective clothing and equipment are not required but should be available for use in emergencies. All equipment and materials are stored and maintained within this zone. Protective clothing is donned in the support zone before entering the contaminant reduction zone.

9.0 DECONTAMINATION GUIDELINES

In the situation where work areas are controlled using the three-zone concept, all personnel must exit the EZ through an established CRZ. At a minimum, CRZ provisions will include a potable water supply, wash buckets or sprayers, cleaning tools, hand soap and clean towels. The applicable CRZ sequence of events should include:

- Wash outer boots, coveralls and outer gloves;
- Remove any outer boot or glove tape;
- Remove outer boots. Either store or properly dispose of outer boots;
- Re-clean and remove outer gloves. If gloves will be reused, inspect and stage the gloves; otherwise properly dispose of the gloves;
- Remove chemical resistant coveralls with care so that hands or inner clothing do not come in contact with any contaminated surfaces. Properly dispose of coveralls;
- Remove respirator and stage in CRZ area. Respirators shall be cleaned and disinfected with a sanitizing agent between uses;
- Remove and dispose of inner gloves; and
- Thoroughly wash hands and face.

All contaminated equipment (such as the drill rig, excavator/back-hoe, tools and sampling equipment, etc.) will be thoroughly decontaminated prior to leaving the EZ. The extent of the decontamination (such as a separate decontamination pad) will be determined by the SSO. The SSO will be responsible for inspecting the decontamination of all equipment prior to leaving the EZ and the Site.

For fieldwork not using the three-zone concept (e.g., soil and sediment sampling with hand-operated equipment), portable wash stations will be utilized for easy and efficient access. The wash station shall consist of a potable water supply, hand soap and clean towels. Portable sprayer units filled with Alconox® solution and potable water will also be available to wash and rinse off grossly contaminated boots, gloves and equipment.

The SSO will monitor decontamination procedures to ensure their effectiveness. Modifications of the decontamination procedure may be necessary as determined by the SSO.

9.1 MANAGEMENT OF GENERATED WASTES

All discarded health and safety equipment and discarded sampling equipment will be segregated and placed in appropriate containers, as required. These containers will be properly labeled and stored in a secure area on site while arrangements are made for disposal.

10.0 SITE ACCESS AND SITE CONTROL

Access to site activities will be limited to authorized personnel and should be coordinated with the site Owner. Such authorized personnel include contractor's employees, subcontractors and representatives of the site Owner. However, access into the established contaminant reduction and exclusion zones will be limited to those authorized personnel with required certifications and wearing appropriate personal protective equipment. The exclusion zones will be monitored by the SSO to ensure personnel do not enter without proper personal protection equipment.

All work zones will be clearly marked with barrier tape and/or cones to ensure that non-authorized personnel are kept at a safe distance. Excavations or trenches/ditches will be secured during off-hours and any stockpiled soil will be covered with plastic.

11.0 EMERGENCY RESPONSE

In the event of an emergency, the SSO will coordinate response activities. Appropriate authorities will be notified immediately of the nature and extent of the emergency. Table 11-1 provides emergency telephone numbers that will be posted within the support zone or any other visible location. Directions to the nearest hospital are also included on Table 11-1.

11.1 RESPONSIBILITIES

The SSO will be responsible for initiating response to all emergencies, and will:

1. Notify appropriate individuals, authorities and health care facilities of the activities and hazards of the field activities.

2. Ensure that the following safety equipment is available: eyewash provisions, first aid supplies and fire extinguisher.

3. Have working knowledge of all safety equipment.

4. Ensure that directions of the most direct route to the nearest hospital is present with the emergency telephone numbers.

5. For a release incident or major vapor emission, determine safe distances and places of refuge.

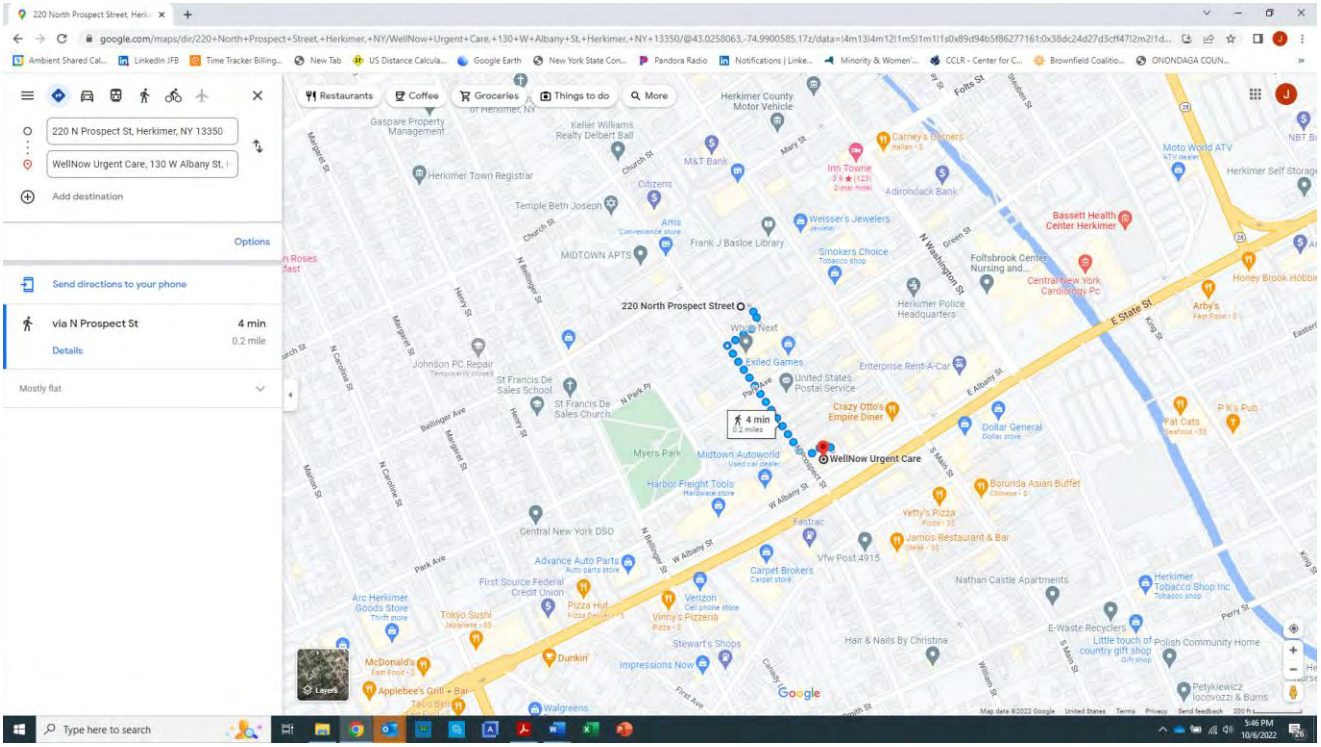
6. For a release incident or major vapor emission, contact the local emergency response coordinator (Fire Department) and NYSDEC Spill Response (if appropriate).

Table 11-1
Emergency Contacts
HMQ BCP Site, 220 North Prospect Stret, Herkimer, NY

Project Health and Safety Coordinator: Rachel Oltmer	(607) 341-5404
Project Director: James F. Blasting, P.G.	(315) 263-3388
Project Manager: Luke McKenney	(315) 439-0772
Ambulance (MOVAC)	911 or (315) 866-2336
Urgent Care (WellNow)	(315) 619-3036
Fire Dept. (Herkimer Fire Department – **EMERGENCY**)	911 or (315) 866-2241
NYSDEC Spill Hotline	1-800-457-7362
Police (Herkimer Police Department)	911 or (315) 866-4330

Directions to Urgent Care: From 220 North Prospect Street

Walk or drive south on North Prospect Street 0.2 miles to corner of North Prospect and Albany.



11.2 ACCIDENTS AND INJURIES

In case of a safety or health emergency at the Site, appropriate emergency measures will immediately be taken to assist those who have been injured or exposed and to protect others from hazards. The SSO will be immediately notified and will respond according to the seriousness of the injury.

11.3 SITE COMMUNICATIONS

Telephones (either temporary landlines or cellular) will be located prior to the start-up of field activities and will be used as the primary off-site communication network. Radios will be used at the Site, as needed.

11.4 RESPONSE EVALUATION

The effectiveness of response actions and procedures will be evaluated by the SSO. Improvements will be identified and incorporated into this and future plans.

12.0 ADDITIONAL SAFETY PRACTICES

The following safety precautions will be enforced during the field activities:

1. Eating, drinking, chewing gum or tobacco, smoking or any practice that increases potential hand-to-mouth transfer and possible ingestion of material is prohibited in areas designated as contaminated by the SSO.

2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking or any other activity.

3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

4. No facial hair that may interfere with the effectiveness of a respirator will be permitted on personnel required to wear tight fitting respiratory protection. The respirator must seal against the face so that the wearer receives air only through the air purifying cartridges. Fit-testing shall be performed prior to respirator use to ensure a proper seal is obtained.

5. Even when wearing protective clothing, contact with potentially contaminated surfaces should be avoided when possible. One should not walk through puddles; mud or other discolored surfaces; kneel on ground; lean, sit or place equipment on drums, containers, vehicles or the ground.

6. Medicine and alcohol can enhance the effect from exposure to certain compounds. Alcoholic beverages will not be consumed during work hours by personnel involved in the project. Personnel using prescription drugs during the project may be precluded from performing specific tasks (e.g. operating heavy equipment) without authorization from a physician.

7. Personnel and equipment in the work areas will be minimized.

8. Work areas and decontamination procedures will be established based on prevailing site conditions.

9. Respirators will be issued for the exclusive use of one worker and will be cleaned and disinfected after each use.

10. Cartridges for air-purifying respirators in use will be changed on a frequency determined by the SSO, with detectable odor/breathing resistance or after each day's use, whichever is shorter.

ATTACHMENT A

COMMUNITY AIR MONITORING PROGRAM

Community Air Monitoring Plan

(Intrusive Activities)

The community air monitoring plan (CAMP) will be implemented during all exterior ground intrusive work during the remedial investigation activities. Continuous monitoring will be performed for all exterior ground intrusive activities including, but are not limited to, demolition of contaminated or potentially contaminated structures, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells. Continuous air monitoring will be conducted when work is taking place near potentially exposed individuals, such as near a busy street or residence, and the CAMP equipment will be capable of calculating 15-minute running average concentrations.

Real-time air monitoring for VOCs and particulate levels at the perimeter of the exclusion zone or work area will be necessary.

Continuous monitoring will be conducted for all exterior ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be conducted during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location.

<u>VOC Monitoring, Response Levels, and Actions</u>

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified by the Site Safety Officer (SSO). Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. Monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shut down and corrective measures will be implemented before work resumes.

4. All 15-minute readings will be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

3. All readings will be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.